U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY—BULLETIN NO. 109.

B. T. GALLOWAY, *Chief of Bureau.*

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AMERICAN VARIETIES OF GARDEN BEANS.

BY

W. W. TRACY, Jr.,
Assistant Botanist, Vegetable Testing Gardens.

Issued September 9, 1907.

WASHINGTON:
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1907.

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William Woodbridge

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Plant Industry,
Office of the Chief,
Washington, D. C., April 19, 1907.

Sir: I have the honor to transmit herewith a technical paper entitled "American Varieties of Garden Beans," prepared by W. W. Tracy, jr., Assistant Botanist, Vegetable Testing Gardens, and to recommend that it be published as Bulletin No. 109 of the series of this Bureau.

In Bulletins Nos. 21 and 69 of the Bureau of Plant Industry reference is made to the increasing number of vegetable varieties and to the need of some established standard of excellence for vegetable types. The present publication, which is a continuation of the line of work followed in the bulletins mentioned, is largely the outgrowth of variety tests carried on at Washington, D. C., and in various places in the States of Connecticut, New York, Minnesota, Nebraska, Missouri, California, and Washington. Considerable assistance was obtained by Mr. Tracy from the publications of the State agricultural experiment stations, and many valuable suggestions were offered by seedsmen and seed growers, several of whom have reviewed the manuscript of this monograph.

Varieties of garden vegetables are now in such a confused condition and reports of vegetable trials generally are so meager and contradictory that it is usually quite impossible for any but the experienced seedsman to determine whether a vegetable type, unknown to a particular community, is really a new type or a sort already cultivated in some part of the country. Many varieties are probably unintentionally renamed, and much unnecessary experimentation and comparison are carried on every year with sorts which are thought to be distinct, but are really identical.

It is hoped that the illustrations and descriptions included in this bulletin will prove adequate to serve as a standard for the different bean varieties and that the notes on the practical value and usefulness of the different sorts, although not yet sufficient to make that part of the bulletin authoritative, will at least be full enough to make a beginning toward establishing the horicultural status of our bean varieties.

Respectfully,

B. T. Galloway,
Chief of Bureau.

Hon. James Wilson,
Secretary of Agriculture.

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AMERICAN VARIETIES OF GARDEN BEANS.

INTRODUCTION.

Next to the potato, the bean is by far the most important vegetable of this country. Being sold in the United States under more than 400 varietal names and having at least 185 distinct types, it easily stands first among vegetables in the number of varieties, and being grown extensively as a field and garden crop, it easily ranks second in the value of crops produced. Dry beans are a staple farm product in many sections of the United States, and snap and green shell beans one of the important green vegetables during the summer months. One American seedsman sells every year more than 24,000 bushels of seed of garden varieties alone.

BOTANICAL RELATIONSHIP OF BEAN SPECIES.

Those plants which are commonly classed as beans include a great number of different species and genera of the Leguminosæ family, the same family to which the garden pea, the sweet pea, the clovers, and the vetches belong. Of these many species this bulletin deals only with garden beans[a] or with those species cultivated chiefly as food for man rather than for fodder, for soiling crops, or for ornamental planting.

GARDEN SPECIES.

The five species whose varieties are described in this bulletin are as follows:

Phaseolus vulgaris, the Kidney bean, one of the hundred or more species of the genus Phaseolus, is the most varied in type and the most widely scattered of all the bean species. The total number of distinct varieties throughout the world is probably at least 500.

Phaseolus lunatus, the Lima bean, is also quite numerous in variety types, but the total number grown to any extent throughout the world is probably less than 50.

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[a] See Farmers' Bulletin No. 289, "Beans."

Phaseolus coccineus (*P. multiflorus*), known as the Runner bean in Europe and as the Multiflora or Scarlet Runner bean in America, is represented throughout the world by perhaps 50 or more distinct varieties.

Vigna sesquipedalis (*Dolichos sesquipedalis*), the Asparagus bean, one of 30 or more species of the genus Vigna, is a comparatively unimportant and unknown plant in agriculture and is represented throughout the world by possibly a dozen distinct varieties.

Vicia faba, the Broad bean, one of the 100 or more species of the genus Vicia, is represented throughout the world by several hundred distinct varieties. To the same genus also belong *Vicia sativa*, commonly known as spring vetch or tare, and *Vicia villosa*, commonly known as hairy or winter vetch.

FIELD SPECIES.

Species not described in this bulletin and which are more important as farm crops than as garden vegetables include in America the following types:

Vigna sinensis, the cowpea,[a] one of 30 or more species of the genus Vigna, very closely resembles *Vigna sesquipedalis*, mentioned as a garden variety. It is represented by a great number of distinct types, though only a few have yet found their way into print, the total number of distinct varieties probably aggregating at least 50. This species is chiefly used in this country as a forage and soiling crop.

Glycine hispida, the soy bean,[b] one of 15 to 20 species of the genus Glycine, is represented by possibly 40 distinct varieties. This species is used in this country almost entirely as a soiling and forage crop, but it is largely cultivated in Japan and other oriental countries as food for man.

Mucuna pruriens var. *utilis*, the Velvet bean, one of 20 to 30 species of the genus Mucuna, is represented by several distinct varieties and is useful in the South as a soiling and forage crop.

Canavalia ensiformis, the Jack bean, one of 17 or more species of the genus Canavalia, is an unimportant plant in agriculture, being used only to a small extent in the South as a forage and soiling crop. There seem to be no well-defined varieties of this species in cultivation.

Dolichos lablab, the Hyacinth bean, one of 40 to 50 species of the genus Dolichos, is represented by perhaps 6 or more varieties, all of which are used as ornamental climbers. The species is of little practical value except for the fact that the seeds are used to a small extent in the Tropics as food for man.

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[a] See Farmers' Bulletins No. 89, "Cowpeas," and No. 278, "Leguminous Crops for Green Manuring;" also Bulletin No. 17 of the Bureau of Plant Industry, "Some Diseases of the Cowpea."

[b] See Bulletin No. 98 of the Bureau of Plant Industry, "Soy Bean Varieties."

PRINCIPLES OF CLASSIFICATION.

Garden beans naturally divide themselves primarily into the five species of which American bean varieties consist. So far there have been no hybrids between the different species of garden beans, and all garden varieties belong unquestionably to one or the other of these five species. Two of these, the *Vicia faba*, or English Broad bean, represented in this country by about 10 distinct varieties, and the *Vigna sesquipedalis*, or Asparagus bean, represented in this country by one distinct variety, contain so few contrasting types that they are not separated into classes, but the remaining 3 species are very readily classified.

Phaseolus vulgaris, the Kidney bean, represented in this country by 145 distinct varieties, has often been separated by botanists and horticulturists, principally on the color and shape of the seed. The objection to such a classification or to any classification based chiefly or wholly on a single character is that it often separates varieties which are very similar or identical in other respects and brings together sorts which are very different in habit of vine or other qualities. The best classification for Kidney beans seems to be as follows: (1) Into pole and bush, (2) into green-podded and wax-podded, (3) into different degrees of brittleness or toughness of pods, and (4) into various other divisions and subdivisions, based upon habit of vine, shape of pod, color of seed, or on some other quality peculiar to each subdivision, these final distinctions depending, as pointed out in the classification on page 29, upon the quality which best brings together identical or similar varieties. Such a classification separates most of the field from the garden varieties, most of the horticultural class from those not known as horticultural, most of the Red Valentine class from other varieties, and makes various other characteristic and useful divisions.

Phaseolus lunatus, the Lima bean, is also separated primarily into pole and bush. In this species the shape of the seed is so very characteristic that both the pole and bush varieties may be divided upon this character as follows: (1) Into flat, large-seeded sorts typifying large, wide, somewhat flat pods with large but not glossy leaf; (2) into flat, small-seeded sorts typifying small, very flat pods with small, glossy leaf; and (3) into thick, large-seeded sorts typifying thick-seeded rather than large, flat-seeded sorts, and large dull rather than small glossy leaves. Other than these divisions, there is no further classification of Limas which has any significance among American sorts.

Phaseolus multiflorus, the Multiflora bean, is represented in this country by but 4 varieties, the only characteristic class distinction between them being the pole and bush forms.

HISTORY OF VARIETIES.

Botanists now agree that *Phaseolus vulgaris*, *P. coccineus* (*P. multiflorus*), and *P. lunatus* are natives of America. It is equally certain that *Vicia faba* and *Vigna sesquipedalis* (*Dolichos sesquipedalis*) are of Old World origin. For a long time it was not definitely known whether the different species were of Old or New World origin, but the discovery of seeds in certain tombs and with mummies and on old records has now made their origin more certain. It is not yet positively known, however, in what particular region the different species are native nor just where they were first cultivated by man. Broad beans were undoubtedly grown by the ancient Egyptians, and kidney beans of many varieties were certainly used by the American Indians at the time of the discovery of America. Lima and Multiflora beans are also known to have been cultivated in the New World for many centuries and the Asparagus beans to have been used in China for a very long time. Kidney beans were probably first carried over to Europe from America about the middle of the sixteenth century, but did not come into general use on the Continent until near the end of the century, while the Multiflora beans were not disseminated till a later period.

Of the 185 distinct varieties of beans now cultivated in this country, only 15 were grown eighty years ago, or, if there were more, they must have been known by quite different names from those they are known by to-day. It is interesting to note that prior to 1815 American seedsmen listed more varieties of Broad beans than at present. The early settlers were apparently so accustomed to Broad beans in Europe that they first endeavored to grow them here, and it was only after it was discovered that the climate of the New England and Middle Atlantic States is unsuited to these beans that their general advertisement was discontinued. In 1822 Thorburn listed 6 varieties of Broad beans, 8 of bush Kidney, 3 of pole Kidney, 1 of pole Lima, and 2 of the Multiflora.

Previous to 1880 nearly all new types of garden beans came from Europe, but since that time nearly all have had their origin in this country. The first wax variety grown in America appears to have been Black Wax Pole, which has been in use at least since 1860, while Black Wax Bush, introduced from Germany about 1865, was probably the first wax bush variety. When introduced these beans were probably not the stringless type that they are to-day, and owing to changes which variety types have undergone it seems impossible to say when the first stringless variety appeared; it certainly must have been later than 1860. The highest standard of quality in snap pods was reached in 1889 with Yosemite Wax. Many varieties of excellent quality have been introduced since that date and some old varieties improved, which are practically equal to but do not surpass the Yosemite in quality.

✓ All the Lima varieties grown in this country have had their origin in America. The first bush form of these beans was listed in 1889. Only during the last twenty-five years has the greatest improvement been made by American seedsmen and seed growers in bean varieties, but as all these improvements and other historical matters are mentioned in the varietal descriptions it is not necessary to make further reference to them here.

RULES FOR DESCRIPTION.

To simplify varietal nomenclature and avoid confusion in variety descriptions, it is necessary to adopt the following rules for the use of names and description of types.

Type names.—After a varietal type is described, it is next necessary to decide which of the many names applied by seedsmen to the type shall be selected as the one by which the type shall be known. Generally the name first used should be adopted, but as the original name sometimes goes out of general use or even disappears altogether from the trade this rule is not always practicable. Even though possible to determine which name was first used, there yet remains the doubt as to whether the old name represents at the present time the same type as when first used. Another type may have been adopted, as, for example, an improved strain may have appeared in the old type, and this may have been given a new name and called a new variety. In course of time seedsmen, in receiving orders for the old variety, may think it best to fill such orders with seed of the improved strain instead of with that of the old type, which they may have discarded altogether. This is what seems to have occurred with Horticultural Bush, so that instead of sending out the old type nearly all seedsmen now send out Ruby Horticultural Bush, which was developed from Horticultural Bush.

Confusing names.—Some names are undesirable because so similar to others as to be easily confused with them; others because so many worded as to be bewildering and inconvenient. In regard to the latter point, it is generally safe to drop from variety names all such words as improved, selected, perfected, extra, select, choice, superior, celebrated, fine, true, and most words in the possessive case.

Source of seed.—As different seedsmen sometimes recognize quite different types for the same variety, it becomes important that the names of seedsmen be given upon whose samples variety descriptions are based. It does not seem worth while, however, to publish occasional or temporary errors which occur in supplying seed orders. Mistakes in variety types are sometimes unavoidable, and the reliability of different seed houses is ascertainable only by a large number of tests, much larger, in fact, than it is usually profitable to make. The question of locality for bean varieties has not yet become important in the United States. This is largely because most of the seed at present is obtained from a few well-recognized localities, and also because it is not yet certainly known whether beans coming from particular localities are really superior to those from other localities. No mention is therefore made in the following descriptions as to where the seed samples were grown. Most of the Kidney bush sorts, however, were probably grown either in New York, Michigan, or Wisconsin, and most of the pole and Lima varieties in California.

Variety forms.—In comparing vegetable varieties a regular order of description should be followed. Some kind of variety form is necessary to avoid omission of the qualities on which information is desired, as well as to make reports orderly, precise, and comparable with those of other experimenters.

VARIETY FORMS FOR BUSH KIDNEY BEANS.

The characters referred to in the variety descriptions of this bulletin are explained here in the same order in which they are followed in the descriptions of the variety types. In addition to these general characters, there are some others peculiar to one or several varieties which are not mentioned, but are discussed in the descriptions of the varieties possessing them. Following each character are generally given the terms used to express its variation. Where no such degrees are noted there is either no great variation in the character or else the varieties are too numerous and irregular to admit of a concise expression of the same.

Size of plant (very large, large, large-medium, medium, small-medium, small, very small).—Size of plant is largely indicative of season and productiveness, and ranges from varieties so large that, like the California field sorts, they require a distance of 32 inches or more between rows to varieties so small that, like the small garden varieties, they require but half the distance of the field sorts, and even then do not fill the rows as completely. The variations for strictly garden beans range from Hodson Wax, for the large sorts, to Taylor's Green Pod, for the very small kinds.

Habit of plant (very erect, erect, somewhat spreading, spreading, very spreading).—Erectness refers to the tendency of plants to grow upright, stiff, and rigid, instead of drooping, spreading, and developing many runners. It is a habit which is not always the same at all stages of growth, some varieties, like Burpee's Stringless Green Pod, being very erect when young, but burdened with fruit-laden branches and drooping when old. For this reason it is necessary to select one stage of a plant's growth at which to describe this peculiarity. The most typical stage and the one adopted in the following descriptions is the time just before the plant comes into full bearing. Variations in habit range from Red Valentine for very erect sorts to Navy Pea and other field varieties for very spreading kinds.

Thickness of plant stems (very slender-stemmed, slender-stemmed, somewhat slender-stemmed, somewhat thick-stemmed, thick-stemmed, very thick-stemmed).—This character is generally correlated with appearance, size, and shape of the leaves, those plants having large, coarse, and wide leaves, like Canadian Wonder and Burpee's White Wax, generally being thick-stemmed, and those plants having small, smooth, narrow leaves, like Refugee and Red Valentine, generally being slender-stemmed.

Number of runners (without runners, occasional runners, moderate number of runners, many runners, etc.).—Some varieties, besides having runners as described above, often develop drooping branches and long fruit spurs, which, though generally not to be classed as runners, sometimes develop into real runners, as is shown by Tennessee Green Pod and Emperor William. Late Refugee and Navy Pea are examples of decidedly spreading bush sorts, and Golden Wax and Round Yellow Six Weeks of varieties absolutely free from runners.

Color of plant stems and branches.—Except Blue Pod Butter, Black Turtle Soup, Lightning, and some varieties having black seed, all beans cultivated in America are green throughout the plant. As explained below, the solid dark-leaved sorts are separated into various shades of green, but their stems and branches are referred to by no other term than green. Only the first two of the above-named varities are colored to any extent, and, while the above black-seeded sorts are commonly classed as green-stemmed, they will be found, upon close examination, to be slightly tinged on the main stem, at nodes of branches, and on the flower stalks.

Season of bush varieties (very early, or less than 46 days; early, 46 to 48 days; early-intermediate, or 49 to 51 days; intermediate, or 52 to 54 days; intermediate-late, or 55 to 57 days; late, or 58 to 60 days; very late, or more than 60 days).—In the above estimates, as well as in the variety descriptions, earliness unless otherwise noted is based upon the time when snap pods are first usable and not when seeds are first dry and ready for thrashing. Although strictly green shell and field sorts are seldom used as snaps, it nevertheless seems desirable to always give the season of the snap pod stage so as to have at least one period at which all varieties are compared, while the season of the other periods need be given only in varieties where green shell and dry beans are more important than snap pods. Some field sorts which produce snap pods much later than some garden varieties would, if judged upon a snap-pod basis alone, be classed as late, when in reality they ripen their crops of seeds much earlier than some so-called early garden varieties. The reason for some garden varieties being early as snaps but late as dry beans is explained by the large amount of flesh or pulp in many round-podded garden sorts, which requires for such pods a long time to dry, whereas the pods of field varieties, consisting, as they do, of thin, tough walls, ripen very quickly when once the pods start to dry. The season of green shell beans is not stated in the descriptions, but can be easily ascertained by adding 8 to 10 days to the snap-pod stage, and for field varieties and flat-podded garden sorts, such as Lightning and Tennessee Green Pod, from 6 to 8 days to the same period.

Length of bearing period (very short, short, moderate, long to moderate, long, very long).—This quality is closely related to season, the early varieties generally being shorter lived than the late sorts and without continuous-growing fruit-bearing runners and branches. The harvesting of an entire crop at a few pickings is sometimes desired by market gardeners, but for home and general use a longer period of available snap and green-shell pods is more desirable.

Productiveness (very light, light, light to moderate, moderate, heavy to moderate, heavy, very heavy).—This character is closely correlated with season, size, and vigor, the earlier, smaller, and less vigorous varieties of the extremely early garden class generally being less productive than the late, large, coarse-growing kinds. An average yield of dry seed for very light croppers, such as Valentine Wax, is 8 bushels, and for very heavy croppers, such as Late Refugee, 14 bushels to the acre. The former has been known, however, to produce as high as 18, and the latter as high as 40 bushels to the acre. The yield of field varieties is considerably more than that of the garden sorts, claims of 60 bushels being sometimes made, though the average for the whole country is only about 12 bushels to the acre.

Size of leaves (very large, large, medium, small, very small).—As the size of the leaves in the bean plants depends so largely upon the position of the leaves on the plant, and as there is but little difference between varieties in the average size of leaves, this quality is generally of little aid in identification. There are, however, a few thick-stemmed sorts, like Giant Forcer, which have very uniformly large leaves, and a few slender-stemmed running sorts, like Crystal Wax, which have very uniformly small leaves.

Color of leaves (very dark green, dark green, medium green, light green, very light green, grayish green, etc.).—Except Blue Pod Butter and Black Turtle Soup, all bush varieties cultivated in the United States have solid green leaves, the depth of color varying from very dark green, as in Triumph of Frames and other green-seeded sorts, to very light green, as in Bountiful. Some varieties, like Late Refugee and the California field sorts, are peculiar on account of a distinct grayish green color.

Shape of leaves (narrow across leaflets, medium in width across leaflets, wide across leaflets).—Most bean varieties are so similar in the shape of their leaves that this character is referred to in the following descriptions only when the shape is unusual, as in Red Valentine and Refugee Wax, which have narrow, pointed leaflets, and in Blue Pod Butter and Black Turtle Soup, which have extremely broad leaflets. Some varieties are peculiar for being widest across the base of the leaflets; others, in being widest across the middle portion.

Surface of leaves (very smooth, smooth, somewhat rough, rough, very rough).—Most bean varieties are generally so alike in leaf surface, and this character changes so much from very smooth in well-grown plants to very rough in poorly grown ones, that the smoothness and roughness of leaves is not often of assistance in identification. In the following descriptions, therefore, it is referred to only in exceptional cases, such as in Best of All, which has very uniformly rough leaves, and in Crystal Wax and Rogers's Lima Wax, which have very uniformly smooth leaves.

Length of petiole (short, medium, long).—The length of the stem of bean leaves depends largely upon the location of the leaves on the plants and is usually of but little aid in identification. Varieties like Hodson Wax, with narrow leaflets, generally have very long petioles, while those with broad leaflets, like Best of All, generally have short ones.

Color of blossoms (pink, light pink, very light pink, shell pink, etc.).—Except Blue Pod Butter and Lightning, all bush varieties cultivated in this country bear flowers which are either white or some shade of pink. The flowers of some varieties change or wilt to light primrose when old, but are white in color when young and are so classed in the descriptions.

Uniformity in size of snap pods (very uniform, uniform, somewhat variable, variable, very variable).—Most varieties are quite uniform in the size of their pods, but sometimes, even on the same plant, the size of pods is quite variable. This is especially true with varieties like Boston Favorite which have been neglected in selection.

Length of snap pods (very short, short, short medium, medium, long, medium long, very long).—Snap pods range in length from 7½ inches, as in Canadian Wonder, to 3½ inches, as in Snowflake.

Straightness of snap pods (very straight, straight, moderately straight, moderately curved, much curved).—Some stringy pods, like Long Yellow Six Weeks, curve at the middle only; some stringless ones, like Round Pod Kidney Wax, are scimiter curved; other stringless pods, like Grenell's Stringless Green Pod, curve at their extreme tip end only; some, both of the stringless and stringy types, like Wardwell's Kidney Wax and Day's Leafless Medium, curve backward at the extreme stem end only; and some others, like Navy Pea, Longfellow, and Improved Goddard, are straight from end to end. In making comparisons of these peculiarities, it should be remembered that poorly grown pods are generally more curved than well-grown ones.

Cross sections of snap pods (very flat, flat, oval flat, oval, oval round, round, round broad, very broad, or double barreled).—Varieties described as round or fleshy are generally the most tender, while those described as flat are usually most full of fiber and even when without string and tough parchment, as in Warren Bush, are at least harder in texture and require longer to cook than those composed more largely of soft fleshy pulp. Some sorts, like Snowflake, are flat at the snap stage, but become almost round at the green shell period, while others, like Refugee, change but little. Some varieties, like Emperor William, are decidedly too flat to be attractive as snaps, while others, like Yosemite, are so broad as to resemble two pods grown together.

Color of snap pods (very dark green, dark green, medium green, light green, very light green, light yellow, medium yellow, deep yellow, etc.).—Many varieties are brilliantly splashed at the green-shell stage, but nearly all varieties listed by American seedsmen are either solid green or solid yellow at the snap pod stage, the only exceptions being Blue Pod Butter, Black Turtle Soup, and a few, like Refugee Wax, which are faint red or purplish splashed at the snap pod stage, and some black-seeded varieties which are reddish streaked along the sutures and at the stem end. Golden Refugee and Crystal Wax, which are silvery green in color, are classed by some as green-podded and by others as wax-podded.

Brittleness of snap pods (very brittle, brittle, somewhat brittle, somewhat tough, tough, very tough).—Some varieties, like Pencil Pod Black Wax, are so brittle that they break when bent very little, while others, like Davis Wax, must be cut and can not be readily broken unless gathered when very young and undersized.

Stringiness of snap pods (stringless, inappreciably stringy, slightly stringy, of moderate string, of strong string, or very strong string).—String in bean pods is used to designate the strip of inedible tough fiber at the dorsal and ventral sutures of many pods. Its presence usually indicates toughness and poor quality, but not always, as is well shown by Red Valentine, which, although stringy, is one of the tenderest and most fleshy of all varieties.

Fiber in snap pods (none, inappreciable, small, moderate, much).—Fiber in bean pods is used to designate the tough layer of parchment present to a greater or less degree in the walls of all pods at the green-shell stage, but absent or inappreciable at the snap-pod stage of some varieties.

Quality of snap pods (very good, good, good to medium, medium, poor to medium, poor, very poor).—Quality in snap pods of American kidney beans is largely a question of tenderness, fleshiness, and freedom from fiber and, unlike English Broad beans and other species, hardly at all a matter of flavor. Contrary to general opinion, as good a quality of snap pods can be selected from the green-podded as from the wax-podded varieties.

Freedom from anthracnose, rust, and other diseases.—Resistance to disease depends so largely upon conditions that only by a very large number of tests can an exact statement on disease resistance be obtained. In some favorable seasons all the varieties in the tests of the Department of Agriculture were free from disease; in other years nearly all were more or less affected; while in still other years sometimes the early and sometimes only the late sorts were affected. In some seasons the conditions favoring the spread of disease do not come till the early sorts are past injury; in other years these injurious conditions may exist only during the period of the early varieties. It seems also that diseases may be carried in the seed and that the presence of anthracnose and rust are due merely to accidental or temporary infection of particular lots of seed rather than to a continuous or inherent tendency of certain varieties to disease. As the results of tests of disease resistance made by the Department of Agriculture were somewhat irregular and incomplete, the notes made in this bulletin on freedom of varieties from anthracnose can not be said to apply regularly to all sections of the country.

Dorsal and ventral sutures.—These are terms used in botany to denote the lines of dehiscence in seed pods, the ventral suture signifying the line along which the seeds of a pod are attached and the dorsal suture the opposite line of dehiscence. Morphologically speaking, a seed pod consists of one or more transformed folded leaves, that of the bean pod being analogous to a single leaf the margins of which have folded inward and grown together so as to produce seeds at their line of union.

Length of pod point (very long, long, medium, short medium, short, very short).—The pod point or spur of bean pods varies in length from very long, as in Longfellow and Bountiful, to very short, as in Eureka and Wardwell's Kidney Wax.

Straightness of pod point (straight, slightly curved, moderately curved, much curved, twisted, etc.).—The shape of pod points is often an indication of stringiness. Pod points which are twisted, irregularly curved, blunt at the end, or depressed at their juncture with the pod indicate very little or no string, while pod points which are regularly tapering and stiff indicate a more or less strong string.

Size of pod clusters.—Under uniformly favorable conditions the size of pod clusters is a helpful and reliable aid to the identification of varieties; but, as the Department trials have not usually been perfect enough to develop this character, no reference is generally made to it in the following descriptions. Barteldes's Bush Lima, Tennessee Green Pod, Wonder of France, and Burpee's Stringless Green Pod are examples of varieties bearing a large number of pods to the cluster.

Position of pod clusters (well below foliage, mostly below foliage, equally above and below foliage, mostly above foliage, well above foliage).—Quite a number of European sorts, as well as a few domestic kinds, such as Lightning, have numerous, thick, strong-stemmed clusters, bearing nearly all their pods well above the plant; other varieties, mostly of the slender, running type, like Refugee, bear nearly all their pods well under the foliage.

Color of green shell pods.—Most green-colored pods gradually lose their original green color and become almost as faded and yellow at the green-shell stage as are the wax sorts at this stage. For this reason the color of pods at the green-shell stage is not useful in identifying and describing varieties unless splashing or tingeing appears or some change occurs other than the usual fading of the pod. This splashing or tingeing, whenever it does appear, is generally some shade of purple or red and usually indicates splashed or colored seed.

Depressions between seeds (much depressed, moderately depressed, slightly depressed, full).—Tennessee Green Pod and most other varieties with seeds very much separated in the pod have their pod walls much depressed or sunken between the seeds; others, like Yosemite Wax and Stringless Green Pod, are so sharply constricted between the seeds that their pods appear as though they had been drawn tight by a thread and separated into sections; while still other varieties, like Refugee and certain round-podded sorts, are full or only slightly depressed between the seeds.

Length in inches of green shell pods.—The measurements given in the following descriptions are those of average-sized pods from well-grown plants. Exceptionally large pods may be one-third longer than the lengths named and unusually poor pods but two-thirds of these lengths.

Number of seeds in green shell pods.—Six is the usual number of seeds for most varieties and conditions, ten being the largest ever found in pods of bush beans at Washington, D. C. If plants be well grown no American variety of Kidney bean contains less than four seeds.

Position of seeds in green shell pods (very crowded, crowded, fairly close, somewhat separated, fairly separated, much separated).—The position of seeds in a bean pod varies from the tightly crowded condition of Red Valentine to the much separated condition of Rogers's Lima Wax and Tennessee Green Pod.

Ease of thrashing dry pods (very easily thrashed, fairly easy to thrash, somewhat hard to thrash, hard to thrash).—Ease of thrashing is largely determined by the amount of fiber in bean pods. Thin-walled, tough-podded field varieties seldom wrinkle or shrivel tightly about the seed or break up into sections when thrashed, as do many of the fleshy-podded garden varieties.

Size of dry seeds (very small, small, small-medium, medium, large-medium, large, very large).—Of kidney beans the small-seeded varieties, like Navy Pea, produce about 2,200 seeds to the pint, the medium-seeded varieties, like Golden Wax, about 1,100, and the large-seeded varieties, like Improved Goddard, about 550. Bush Multiflora, Scarlet Runner, and White Dutch Runner produce about 250, Henderson's Bush Lima about 1,100, Burpee's Bush Lima about 320, and Dreer's Bush Lima about 450 seeds to the pint. Although the size of the seed is generally quite uniform in the same variety and varies but little from the illustrations given in this bulletin, they are nevertheless often affected by unusual seasons, locations, and soil conditions, those grown in very poor soil and during dry seasons often being but half the size of those grown in unusually damp locations and seasons.

Length of dry seeds (extremely slender, slender, medium, somewhat short, short, very short).—The shape of dry seed is a fairly constant feature which varies but little with season and conditions. Some kidney sorts, like Ruby Horticultural Bush, are almost as broad as long, while others, like Longfellow, are several times greater in length than in cross section.

Cross sections of dry seeds (very flat, flat, flat-oval, oval, round-oval, round).—The shape of the cross section of seeds is a fairly constant varietal feature and is usually an indication of the shape of the pods.

Ends of dry seeds (very rounded, rounded, rounded to truncate, truncate, decidedly truncate).—The shape of the ends of seeds depends largely upon the position of the seeds in the pod, those which are very crowded in the pod being generally square at the ends, while those which are well separated in the pod are usually rounded at the ends.

Curvature at eye of dry seed (much incurved, incurved, almost straight, straight, rounded or full, very well rounded or full).—Seeds vary in shape at the eye from the very incurved condition of French Flageolet to the very rounded or full condition of White Marrow.

Color of dry seeds.—Because different varieties of beans vary more in the color of seeds than is the case with other vegetables, there is less opportunity for substitution with bean varieties than there is with varieties of other vegetables. In exceptional soils and seasons, the amount of splashing and mottling may vary more or less from that shown in the plates of this bulletin. Golden Wax, for example, may in certain soil and seasons show very little white color, while under other conditions four-fifths of the surface of the seeds may be white. As no complete chart of colors is at present published in this country, it has been necessary to adopt as the standard for the description of colors the French publication edited by Henri Dauthenay and known as Repertoire de Couleurs.

VARIETY FORMS FOR POLE KIDNEY BEANS.

Pole Kidney beans are described in nearly the same terms as bush Kidney beans, the exceptions being as follows:

Climbing habit (good, fair, poor).—Pole beans, instead of being described as erect in habit, are classified according to their ability to take hold of and twine about poles or other supports. Some varieties, such as Golden Champion and many of the Horticultural class, at first appear to be spreading bush sorts and do not at once take readily to climbing, but when once started nearly all American varieties climb readily to poles or to any other suitable supports.

Branching habit (much branched, moderately branched, little branched).—This character, which is not included in the description of bush varieties, is of some use in defining pole sorts to express an open slender growth, like Kentucky Wonder, or dense spreading growth, like Virginia Cornfield.

Season of snap pods for pole varieties (very early, or less than 57 days; early, or 57 to 60 days; early-intermediate, or 61 to 64 days; intermediate, or 65 to 68 days; intermediate-late, or 69 to 72 days; late, or 73 to 76 days; very late, or more than 76 days).—Sometimes very early varieties, like White Creaseback and Golden Champion, produce pods before the runners appear; and when plants are checked in growth, especially those of the Horticultural class, they often show the same tendency. Six to ten days are required for different varieties of pole beans to develop from the snap into the green shell stage.

VARIETY FORMS FOR LIMA BEANS.

Most of the terms used to describe pole Kidney and bush Kidney varieties are also applicable to pole Lima and bush Lima varieties, respectively. The exceptions are that season in Limas is judged at the green-shell stage, and since Lima pods are neither usable nor characteristic at the snap-pod stage no description is necessary of them at that period, while color is described by merely stating the shade of green in leaf and pod.

Season of bush Lima varieties (very early, or less than 75 days; early, or 75 to 78 days; intermediate, or 79 to 81 days; late, or 82 to 84 days; very late, or over 84 days).—Both pole and bush Lima varieties seem more subject to delay in season through cold, wet weather and other unfavorable conditions than Kidney beans. Reports on season in Limas therefore differ greatly, and though the above-mentioned periods are applicable to most conditions, they nevertheless vary from one to three weeks longer and sometimes from a week to 10 days shorter than stated here.

Season of pole Lima varieties (very early, or less than 80 days; early, or 80 to 83 days; intermediate, or 84 to 86 days; late, or 87 to 89 days; very late, or over 90 days).—As previously stated, this quality is subject to great variation in Limas. In pole varieties an additional source of variation arises from certain stray pods which ripen early but are too few in number and too spasmodic in season to be a real indication of earliness.

SUMMARY OF DESIRABLE VARIETIES.

The following lists represent a cursory review of some of the important decisions stated in the variety descriptions of this bulletin. Such lists as these are, of course, subject to many limitations, as all experienced gardeners will appreciate. Many varieties not suited for general use, but admirably adapted to special soils, markets, and conditions, are not included in these lists, and others just as suitable as the sorts named but differing from them in immaterial respects are also omitted. Standard varieties and sorts representing considerable range in type have generally been selected, the object being to avoid as far as possible those sorts which are but little known and also those which represent very similar characteristics.

Desirable bush varieties for home use.—For green-colored snaps: Giant Stringless Green Pod, Red Valentine, Late Refugee, Warren Bush. For yellow-colored snaps: Maule's Nameless Wax of 1906, Pencil Pod Black Wax, Keeney's Rustless Golden Wax, Refugee Wax, Burpee's Kidney Wax. For combination of snaps and green shell in a single variety: Ruby Horticultural Bush, Warren Bush. For Lima beans: Wonder Bush, Dreer's Bush, Wood's Prolific Bush. For Kidney green shell beans: Improved Goddard, Ruby Horticultural Bush, Tennessee Green Pod.

Profitable bush varieties for market.—For green-colored snaps: Hodson Green Pod, Late Refugee, Black Valentine, Extra Early Refugee, Giant Stringless Green Pod, Red Valentine. For yellow-colored snaps: Hodson Wax, Keeney's Rustless Golden Wax, Golden Wax, Davis Wax, Refugee Wax, Bismarck Black Wax. For Lima beans: Wonder Bush, Wood's Prolific Bush, Dreer's Bush. For Kidney green shell beans: Improved Goddard, Ruby Horticultural Bush. The above sorts were selected without reference to whether the quality is good or bad, the most importance being given to productiveness, attractiveness, hardiness, and shipping qualities.

Desirable pole varieties for home use.—For green-colored snaps: Black Kentucky Wonder, Burger's Stringless, Kentucky Wonder, Lazy Wife Pole. For yellow-colored snaps: Golden Carmine-Podded Horticultural, Golden Cluster Wax, Indian Chief. For combination of snaps and green shell beans in a single variety: Lazy Wife, Black Kentucky Wonder, Golden Carmine-Podded Horticultural. For Lima beans: Henderson's Ideal, Wood's Improved Pole Lima, Dreer's Pole Lima. For Kidney green shell beans: Lazy Wife, Childs's Horticultural, London Horticultural, Golden Carmine-Podded Horticultural.

Profitable pole varieties for market.—For green-colored snaps: White Creaseback, Black Kentucky Wonder, Lazy Wife, Scotia. For yellow-colored snaps: Indian Chief, Kentucky Wonder Wax, Golden Carmine-Podded Horticultural. For Lima beans: Henderson's Ideal, Wood's Improved Pole Lima, Dreer's Pole Lima, Leviathan. For Kidney green shell beans: London Horticultural, Childs's Horticultural, Worcester Mammoth, Dutch Case Knife.

Most largely grown garden bush varieties.—Of green-colored Kidney sorts Red Valentine is by far the most largely planted, followed next by Late Refugee, Burpee's Stringless Green Pod, Giant Stringless Green Pod, Extra Early Refugee, and Mohawk. None of the wax sorts are as extensively planted as the more popular green-podded sorts. The most largely grown of the class are Improved Golden Wax, Golden Wax, Wardwell's Kidney Wax, German Black Wax, Davis Wax, and Currie's Rustproof Wax. The most popular Lima varieties are Burpee's Bush Lima, Henderson's Bush Lima, and Dreer's Bush Lima.

Most largely grown field varieties.—Navy Pea, commonly known to the produce trade as Marrow Pea, is by far the most popular variety; following it are the Mediums, represented by Burlingame Medium, Day's Leafless Medium, and others of local or trade names. White Marrow and Red Kidney probably rank third and fourth.

Most largely grown garden pole varieties.—Of the green-colored kidney sorts Kentucky Wonder is by far the most largely grown. After it come London Horticultural, Lazy Wife, White Creaseback, and Dutch Case Knife. None of the wax sorts are planted as extensively as the more popular green-colored sorts. The most largely grown of the class are probably Indian Chief and Golden Cluster Wax. The most largely grown Limas are King of Garden Pole, Large White Pole, and Small White Pole.

Most productive garden bush varieties.—For green-colored snaps: Hodson Green Pod, Galèga, Golden Refugee, Late Refugee, Byer's Bush. For yellow-colored snaps: Hodson Wax, Refugee Wax, Keeney's Rustless Golden Wax, Speckled Wax. For Lima beans: Wonder Bush, Dreer's Bush, Wood's Prolific Bush, or Burpee's Bush, depending upon conditions. For Kidney green shell beans: Improved Goddard, Boston Favorite, Warren Bush, Marblehead Horticultural, White Kidney.

Most productive pole varieties.—For green-colored snaps: Powell's Prolific, Scotia, Black Kentucky Wonder, Lazy Wife, London Horticultural. For yellow-colored snaps: Indian Chief, Andulusia Wax, Golden Cluster Wax. For Lima beans: King of Garden, Dreer's Pole, or Wood's Improved Pole, depending greatly upon conditions. For Kidney green shell beans: London Horticultural, Lazy Wife, Dutch Case Knife.

Bush varieties of good quality.—For green-colored snaps: Burpee's Stringless Green Pod, Giant Stringless Green Pod, Knickerbocker, Henderson's Full Measure, Red Valentine, Warren Bush. For yellow-colored snaps: Yosemite Wax, Pencil Pod Black Wax, German Black Wax, Refugee Stringless Wax, Maule's Nameless Wax of 1906. There is so little difference in quality between Kidney varieties at the green and dry shell stages and tastes vary so greatly as to what is good quality at these stages that it seems quite impossible to say which varieties are best in quality for green shell and baking beans. The horticultural varieties are, however, generally classed in America as the best for green shell beans. For baking beans certain varieties of the so-called field beans are preferred by different nationalities, as, for instance, persons of Spanish descent generally prefer the Red Kidney, the California field varieties, or other kinds to which they have been accustomed, while Americans usually prefer the Marrow or Pea varieties, and Swedish people the Brown Swedish varieties to which they are accustomed. Opinions differ greatly regarding the quality of Lima beans, but Dreer's Bush is generally given first place; Burpee's Bush, or some other large, flat-seeded sort, second place, and Henderson's Bush, or some other small, flat-seeded sort, third place.

Pole varieties of good quality.—More than half the green-podded varieties and all the wax-podded pole sorts, except Golden Champion, are of good quality as snaps. Burger's Stringless probably stands first, after which comes Lazy Wife, then Arlington Cranberry, Golden Carmine-Podded Horticultural Wax, Golden Cluster Wax, and Kentucky Wonder Wax. The remarks already made on the quality of green and dry shell beans of bush varieties apply also to pole sorts.

Earliest and latest bush varieties for snaps.—For earliest green-colored snaps: Warwick, Bountiful, Taylor's Green Pod, Ne Plus Ultra, and Grenell's Stringless Green Pod. For earliest yellow-colored snaps: Challenge Black Wax, Valentine Wax, Golden Wax, Improved Golden Wax, Currie's Rustproof Wax. For latest green-colored snaps: Galega, Hodson Green Pod, Late Refugee, Golden Refugee, Byer's Bush. For latest yellow-colored snaps: Hodson Wax, Speckled Wax, Burpee's White Wax, Refugee Wax.

Earliest and latest pole varieties for snaps.—Earliest green-colored snaps: White Creaseback, Burger's Stringless, Kentucky Wonder, Arlington Red Cranberry. For earliest yellow-colored snaps: Golden Champion Pole, Kentucky Wonder Wax, Golden Carmine-Podded Horticultural. For latest green-colored snaps: Powell's Prolific, White Sickle, Scotia, London Horticultural. For latest yellow-colored snaps: Indian Chief, Mont d'Or, Andulusia Wax.

Disease-resistant varieties.—As already explained, disease resistance in bean varieties is subject to great variation. For this reason, advice on selection can be given along general lines only, the most important being that large, vigorous-growing, stringy, tough-podded, green-podded, and field varieties are generally less subject to disease than correspondingly small, frail-growing, stringless, brittle-podded, wax-podded, and garden varieties. Conspicuous exceptions occur in all these groups; for example, the tough-podded Davis Wax has of late years been more subject to rust and anthracnose than many tender-podded wax varieties, and the green-podded Longfellow more susceptible to disease than many tenderer podded sorts of less vigor.

Little-known but desirable varieties.—Green-podded bush: Hodson Green Pod, Byer's Bush, Warren Bush, Henderson's Full Measure, Golden Refugee. Wax-podded bush: Hodson Wax, Maule's Nameless Wax of 1906, Keeney's Rustless Golden Wax, Burpee's Kidney Wax, Bismarck Black Wax, Golden Crown. Bush Lima: Wonder Bush, Wood's Prolific Bush. Green-podded pole: Black Kentucky Wonder, Scotia, Burger's Stringless, Powell's Prolific, White's Prolific. Wax-podded pole: Golden Carmine-Podded Horticultural, Kentucky Wonder Wax. Pole Lima: Henderson's Ideal, Leviathan, Wood's Improved Pole.

CLASSIFICATION OF VARIETIES.

Vicia faba (English Broad beans). Leaves pinnate, the terminal leaflet wanting or represented by a rudimentary tendril; seeds with hilum extending over at least one-fifth circumference of seed; plants erect .... Broad Windsor.

Vigna sesquipedalis (Yard Long or Asparagus bean). Leaves pinnately trifoliate, the terminal leaflet present; seeds with hilum extending over less than one-tenth circumference of seed; flowers with keel not spirally twisted; plants climbing or trailing, never erect .... Yard Long.

Phaseolus coccineus (Multiflora beans). Leaves pinnately trifoliate, the terminal leaflet present; seed with veining almost imperceptible; flowers large, or at least 1¼ inches across wings, and with keel spirally twisted; roots tuberous-rooted or thickened.

Plants bush .... Aroostook Bush Lima, Bartledes's Bush Lima.

Plants pole .... Scarlet Runner, White Dutch Runner.

Phaseolus lunatus (Lima beans). Leaves pinnately trifoliate, the terminal leaflet present; seeds with more or less pronounced veining and flat to oval-flat; flowers small or not over ⅝ inch across wings; roots fibrous; pods not edible at any stage of development.

Plants bush.

Seeds flat and large .... Burpee's Bush Lima, Wonder Bush Lima.

Seeds flat and small .... Henderson's Bush Lima, Wood's Prolific Bush, Willow-Leaved Bush, Jackson Wonder Bush.

Seeds thick and large .... Dreer's Bush Lima.

Plants pole.

Seeds flat and large .... Leviathan Pole, Seibert's Pole, Extra Early Jersey Lima, Large White Lima, King of Garden, Henderson's Ideal, Ford's Mammoth, Salem Mammoth, Mottled Lima, Long-Podded Lima.

Seeds flat and small .... Small White Lima, Willow-Leaved, Wood's Improved, Florida Butter.

Seeds thick and large .... Dreer's Pole.

Phaseolus vulgaris (Kidney beans). Leaves pinnately trifoliate, the terminal leaflet present; seeds with more or less pronounced veining, mostly round but sometimes flat through cross section; flowers small or not ⅝ inch across wings; roots fibrous; pods edible, at least when young.

Plants bush.

Pods more or less green in color at snap stage.

Fully developed snap pod brittle, or at least readily breaking when bent.

Pods more or less flat .... Bountiful, Grenell's Stringless Green Pod, Ruby Horticultural, Yellow Cranberry, Warren Bush, Low's Champion.

Pods varying from oval to round in cross section.

Plants decidedly spreading or with semirunners .... Golden Refugee, Refugee, Yankee Winter.

Plants erect, or at least devoid of semirunners.

Pods stringless or nearly so .... Burpee's Stringless Green Pod, Giant Stringless Green Pod, Henderson's Full Measure, Knickerbocker, Garden Pride, Taylor's Green Pod, Round Yellow Six Weeks.

Phaseolus vulgaris (Kidney beans)—Continued.
  Plants bush—Continued.
    Pods more or less green in color at snap stage—Continued.
      Fully developed snap pod brittle, etc.—Continued.
        Pods varying from oval to round in cross section—Continued.
          Plants erect, or at least devoid of semirunners—Continued.
            Pods with more or less pronounced string.............. Red Valentine, White Valentine, Cream Valentine, Extra Early Refugee, Byer's Bush, Longfellow, Best of All, Giant Forcer, Thorburn's Prolific Market.
      Fully developed snap pods more or less tough or not readily breaking when bent, but sufficiently free from fiber to be in general use as snaps rather than as green or dry shell beans.
        Plants very spreading or with semirunners................. Galega, Hodson Green Pod.
        Plants erect or at least devoid of semirunners.
          Plants purplish tinged and seeds light ecru............... Blue Pod Butter.
          Plants green and seeds sea-green.......... Triumph of Frames, Wonder of France.
          Plants solid green and seeds black, brown, or other than sea-green or light ecru................. Long Yellow Six Weeks, Ne Plus Ultra, Veitch's Forcing, Vienna Forcing, China Red Eye, Mohawk, French Mohawk, Black Valentine.
      Fully developed snap pods decidedly tough and so full of fiber as to be in more general use as green and dry shell beans than as snaps.
        Plants very spreading or with semirunners.
          Plants thick-stemmed; green shell pods oval-flat and purple in color.................................. Black Turtle Soup.
          Plants thick-stemmed; green shell pods very flat and green in color (except Lightning, which is sometimes tinged with brownish purple)........................ Emperor William, Earliest Market, Everbearing, Lightning, Tennessee Green Pod.
          Plants thick-stemmed; green shell pods changing to oval or nearly so and green in color.................. White Marrow, Improved Yellow Eye, Eureka.
          Plants slender-stemmed; green shell pods changing to oval or nearly so and green in color................ Snowflake, Navy, Prolific Tree, Day's Leafless.
        Plants erect or at least devoid of semirunners, except Boston Favorite.
          Seeds of solid white color............ Early Aroostook, French Flageolet, White Kidney, Vineless Marrow.
          Seeds of solid brownish or violet shades .... Red Kidney, Canadian Wonder, Vick's Prolific Pickler, Brown Swedish.
          Seeds splashed with violet, red, or similar colors with generally a pale buff as the predominating color.... Improved Goddard, Boston Favorite, Marblehead Horticultural, Crimson Beauty, Warwick, French Kidney.

Phaseolus vulgaris (Kidney beans)—Continued.
- Plants bush —Continued,
  - Pods more or less yellow at snap stage.
    - Fully developed snap pods more or less brittle or breaking readily when bent.
      - Pods more or less flat.
        - Plants with creeping semirunners.......Rogers's Lima Wax.
        - Plants with drooping semirunners...........Keeney's Rustless Golden Wax.
        - Plants erect or devoid of semirunners.................Golden Wax, Improved Golden Wax, Wardwell's Kidney Wax, Henderson's Market Wax, Burpee's Kidney Wax, Black-Eyed Wax, Burpee's White Wax, Leopard Wax.
      - Pods round or nearly so.
        - Plants decidedly spreading and with semirunners....Crystal Wax, Refugee.
        - Plants more or less erect or at least devoid of semirunners. German Black Wax, Prolific Black Wax, Challenge Black Wax, Bismarck Black Wax, Pencil Pod Black Wax, Round Pod Kidney Wax, Livingston's Hardy Wax, Yosemite Wax, Double-Barrel Wax, Maule's Butter Wax, Maule's Nameless Wax of 1906, Golden Crown Wax, Jones's Stringless Wax, Valentine Wax, Monarch Wax, Golden Beauty, Speckled Wax.
    - Fully developed snap pods somewhat tough or not breaking readily when bent.............Davis Wax, Scarlet Flageolet Wax, Purple Flageolet Wax, Allan's Imperial Wax, Horticultural Wax, Currie's Rustproof Wax, Detroit Wax, Golden-Eyed Wax, Hodson Wax.
- Plants pole.
  - Pods more or less green at snap stage.
    - Fully developed pods more or less brittle or readily breaking when bent.
      - Pods more or less flat at snap stage.......................Arlington Red Cranberry, Extra Early Horticultural, Lazy Wife, London Horticultural, Red Cranberry, White's Prolific, Worcester Mammoth.
      - Pods round or nearly so at snap stage.........................Black Kentucky Wonder, Burger's Stringless, Kentucky Wonder, Powell's Prolific, Scotia Pole, Tennessee Wonder, White Creaseback, White Sickle.
    - Pods more or less tough as fully developed snaps or not readily breaking when bent.
      - Seeds white..............................Dutch Case Knife, Early Giant Advance, Royal Corn, Virginia Cornfield.
      - Seeds colored......................................Brockton Pole, Childs's Horticultural, Concord Pole, Missouri Wonder, Southern Prolific, Speckled Cut Short.
  - Pods more or less yellow in color at snap stage.
    - Pods always wide and flat......................Golden Carmine-Podded Horticultural, Golden Cluster Wax, Sunshine Wax, Kentucky Wonder Wax, Landreth's Wax.
    - Pods wide and flat only at snap stage..........................Andalusia Wax, Indian Chief, Mont d'Or Wax.
    - Pods always round through cross section........Golden Champion Wax.

ARTIFICIAL KEY TO VARIETIES.

The following key, arranged on the dichotomous system, now largely adopted by botanists, is devised to enable the student to determine the variety name of any bean listed by American seedsmen. An examination of the numbers on the left will show that these numbers run from 1 to 111 in pairs and that the descriptions in each one of this set of numbers are in opposite or contrasting characters; also that at the right of these descriptions is given sometimes a variety name and sometimes a number referring to a similar number on the left of the page. To trace out a particular variety, like Currie's Rustproof, for instance, the student, beginning at 1, is referred in regular order to 2, 3, 6, 21, 48, 49, 54, 55, and finally to 56, where the name sought is given on the right.

In order to make this key compact, the descriptions are necessarily quite short, and in case of the color of seeds it has seemed desirable to disregard the minute, almost imperceptible colored area about the eye of some seeds and describe them as of a solid color, although they are not so described in the formal descriptions, or at least the minute colored area around the eye is given some mention.

1. Seeds with very large hilum, or eye, extending over at least one-fifth circumference of seed .... *Broad Windsor and other English Broad varieties.*
1. Seeds with very small hilum, or eye, extending over not more than one-twentieth circumference of seed 2
2. Fully developed pods less than one-fourth inch in diameter and at least 14 inches in length (leaf, pod, and habit resembling cowpea) ..... *Yard Long Pole.*
2. Fully developed pods over one-fourth inch in diameter at widest portion and less than 14 inches in length (leaf, pod, and habit not resembling cowpea) 3
3. Flowers large, or at least 1¼ inches across wings; roots inclined to be thickened (Multiflora varieties) 4
3. Flowers small, or not over five-eighths inch across wings; roots never thickened, always fibrous (Lima and Kidney varieties) 6
4. Plants bush .... *Aroostook Bush Lima, Barteldes's Bush Lima.*
4. Plants pole 5
5. Seeds white .... *White Dutch Runner.*
5. Seeds violet-black, mottled with bluish violet .... *Scarlet Runner.*
6. Pods never fleshy or edible even when very young (Lima beans) 7
6. Pods more or less fleshy and always edible when very young (Kidney beans) .. 21
7. Plants bush 8
7. Plants pole 12
8. Seeds yellowish, splashed with pansy violet .... *Jackson Wonder Bush.*
8. Seeds entirely white 9
9. Pods thick and seeds very crowded in pod .... *Dreer's Bush.*
9. Pods flat and seeds somewhat separated in pod 10
10. Leaflets extremely narrow or lanceolate .... *Willow-Leaved Bush.*
10. Leaves not extremely narrow or lanceolate 11
11. Leaves very glossy and seeds small ..... *Wood's Prolific Bush, Henderson's Bush.*
11. Leaves not very glossy and seeds large .... *Burpee's Bush, Wonder Bush.*

12. Seeds mottled 13
12. Seeds entirely white 14
13. Seeds mottled with brownish black .... *Florida Butter.*
13. Seeds mottled with plum violet .... *Mottled Pole.*
14. Leaflets extremely narrow or lanceolate .... *Willow-Leaved Pole.*
14. Leaflets not extremely narrow nor lanceolate 15
15. Leaves very glossy .... *Small White Pole, Wood's Improved Pole.*
15. Leaves not very glossy 16
16. Pods thick and seeds very crowded in pod .... *Dreer's Pole.*
16. Pods flat and seeds somewhat separated in pod 17
17. Pods uniformly much twisted .... *Long-Podded Pole.*
17. Pods not uniformly much twisted 18
18. Pods large or very large 19
18. Pods medium or large-medium 20
19. Variety early .... *Leviathan.*
19. Varieties late .... *Henderson's Ideal, Ford's Mammoth, King of Garden.*
20. Varieties intermediate or later in season .... *Large White Pole, Salem Pole.*
20. Varieties early in season .... *Extra Early Jersey Pole, Seibert's Pole.*
21. Plants pole 22
21. Plants bush 48
22. Pods yellow (wax varieties) 23
22. Pods green 31
23. Seeds entirely white 24
23. Seeds not entirely white 25
24. Pods decidedly flat .... *Golden Cluster Wax.*
24. Pods rounded .... *Andalusia Wax.*
25. Seeds distinctly splashed 26
25. Seeds not distinctly splashed 27
26. Seeds light yellow, splashed with red .... *Golden Carmine-Podded Horticultural.*
26. Seeds maize yellow, splashed with dark hazel .... *Landreth's Wax.*
27. Pods flat or nearly so at green shell stage 28
27. Pods rounded or nearly so at green shell stage 29
28. Seeds maroon to chocolate brown .... *Kentucky Wonder Wax.*
28. Seeds purplish brown .... *Sunshine Wax.*
29. Variety early in season .... *Golden Champion.*
29. Varieties intermediate-late or late in season 30
30. Seeds madder brown or pansy violet .... *Mont d'Or.*
30. Seeds bluish black .... *Indian Chief.*
31. Seeds entirely white 32
31. Seeds not entirely white 37
32. Varieties late-intermediate or earlier in season 33
32. Varieties late or very late in season 35
33. Pods very flat .... *Dutch Case Knife, Early Giant Advance.*
33. Pods not very flat 34
34. Pods stringless .... *Burger's Stringless.*
34. Pods stringy .... *White Creaseback.*
35. Pods stringless .... *Lazy Wife.*
35. Pods stringy 36
36. Pods round or nearly so .... *White Sickle.*
36. Pods oval-flat to flat .... *Royal Corn, Virginia Cornfield.*
37. Seeds of at least two well-defined colors 42
37. Seeds of but one well-defined color 38
38. Variety very early in season .... *Kentucky Wonder.*

38. Varieties late-intermediate or later in season 39
39. Pods round .... *Powell's Prolific, Southern Prolific* (*round type*).
39. Pods oval-flat to very flat 40
40. Seeds entirely black .... *Black Kentucky Wonder.*
40. Seeds solid plum violet or solid fawn 41
41. Pods stringless .... *Arlington Red Cranberry.*
41. Pods stringy .... *Red Cranberry, Southern Prolific* (*flat type*).
42. Seeds pale buff, splashed with reddish purple or purplish red (Horticultural beans) 43
42. Seeds not pale buff and not splashed with reddish purple or purplish red 44
43. Pods stringless .... *Extra Early Horticultural, London Horticultural, Worcester Mammoth.*
43. Pods stringy .... *Brockton Pole, Childs's Horticultural.*
44. Pods round, or nearly so, at snap stage .... *Scotia, Tennessee Wonder.*
44. Pods flat at snap stage 45
45. Seeds round 46
45. Seeds flat or flat-oval 47
46. Seeds largely white with light buff around eye .... *Concord Pole.*
46. Seeds dingy gray dotted with purplish red .... *Speckled Cut Short.*
47. Seeds putty color with golden bronze-green stripes .... *White's Prolific.*
47. Seeds pinkish drab with tan brown stripes .... *Missouri Wonder.*
48. Pods yellow (wax varieties) 49
48. Pods green 76
49. Seeds entirely white 50
49. Seeds not entirely white 54
50. Pods silvery yellow or silvery white .... *Crystal Wax.*
50. Pods not silvery yellow or silvery white 51
51. Pods stringy 52
51. Pods stringless 53
52. Seeds small and plants spreading .... *Rogers's Lima Wax.*
52. Seeds large-medium and plants erect .... *Davis Wax.*
53. Pods flat .... *Burpee's White Wax.*
53. Pods round .... *Jones's Stringless, Golden Crown.*
54. Seeds entirely black 55
54. Seeds not entirely black 58
55. Pods stringy 56
55. Pods stringless 57
56. Pods round or nearly so .... *Bismarck Black Wax.*
56. Pods flat .... *Currie's Rustproof.*
57. Pods double-barreled and very variable in size .... *Yosemite Wax.*
57. Pods not double-barreled and not very variable in size ..... *Challenge Black Wax, German Black Wax, Pencil Pod Black Wax, Prolific Black Wax.*
58. Seeds of at least two well-defined colors 62
58. Seeds of but one well-defined color 59
59. Pods oval-round to double-barreled 60
59. Pods flat 61
60. Pods very broad or double-barreled .... *Double-Barrel Wax.*
60. Pods oval-round .... *Golden Beauty.*
61. Seeds straw yellow .... *Henderson's Market Wax.*
61. Seeds plum violet or blackish purple ... *Scarlet Flageolet Wax, Purple Flageolet Wax.*
62. Seeds evenly mottled or colored throughout 63
62. Seeds not evenly mottled or colored throughout 68

63. Pods flat and tough .... *Hodson Wax, Horticultural Wax, Mohawk Wax.*
63. Pods round and brittle 64
64. Variety very early and plants small .... *Valentine Wax.*
64. Varieties later than early-intermediate and plants large 65
65. Pods stringy 66
65. Pods stringless 67
66. Seeds bluish black, mottled with pale buff .... *Refugee Wax.*
66. Seeds reddish buff, splashed with reddish purple .... *Speckled Wax.*
67. Seeds bluish black, mottled with pale buff .... *Refugee Stringless Wax.*
67. Seeds chocolate brown, mottled with maize yellow ..... *Livingston's Hardy Wax.*
68. Pods stringy .... *Golden-Eyed Wax, Detroit Wax, Allan's Imperial Wax.*
68. Pods stringless 69
69. Seeds with less than one-tenth surface solid white .... *Leopard Wax.*
69. Seeds with over three-tenths surface solid white 70
70. Seeds of a solid color around eye 71
70. Seeds mottled with at least two well-defined colors around eye 73
71. Pods oval or oval-flat through cross section .... *Black-Eyed Wax.*
71. Pods round through cross section 72
72. Seeds black at eye .... *Round Pod Kidney Wax.*
72. Seeds golden bronze or pansy violet at eye .... *Maule's Nameless, Monarch Wax.*
73. Pods round to double-barreled .... *Maule's Butter.*
73. Pods oval to flat 74
74. Plants spreading .... *Keeney's Rustless Golden Wax.*
74. Plants erect 75
75. Seeds round and proportionally short .... *Improved Golden Wax, Golden Wax.*
75. Seeds flat and proportionally long .. *Wardwell's Kidney Wax, Burpee's Kidney Wax.*
76. Seeds entirely white 77
76. Seeds not entirely white 83
77. Pods stringless .... *Garden Pride.*
77. Pods stringy 78
78. Pods round or nearly so at snap stage 79
78. Pods flat at snap stage 80
79. Plants spreading in habit and late .... *Yankee Winter.*
79. Plants very erect in habit and early .... *White Valentine.*
80. Seeds flat or flat-oval through cross section .... *Earliest Market, Everbearing, Emperor William.*
80. Seeds oval to round through cross section 81
81. Plants erect .... *Early Aroostook, French Flageolet, Vineless Marrow, White Kidney.*
81. Plants more or less spreading 82
82. Seeds large for field beans .... *White Marrow.*
82. Seeds very small to medium for field beans .... *Day's Leafless Medium, Navy Pea, Prolific Tree, Snowflake.*
83. Seeds entirely black 84
83. Seeds not entirely black 86
84. Seeds and plants decidedly purplish tinged .... *Black Turtle Soup.*
84. Seeds and plants not perceptibly purplish tinged 85
85. Variety early-intermediate in season .... *Black Valentine.*
85. Variety very late in season .... *Thorburn's Prolific Market.*
86. Seeds of but one well-defined color 87
86. Seeds of at least two well-defined colors 98
87. Pods oval to round at snap stage 88
87. Pods flat to very flat at snap stage 90

88. Seeds entirely purplish brown .... *Knickerbocker.*
88. Seeds not entirely purplish brown 89
89. Seeds burnt umber or sea green in color .... *Burpee's Stringless Green Pod, Triumph of Frames.*
89. Seeds medium ecru, brown ocher, or straw yellow in color .... *Cream Valentine, Giant Stringless Green Pod, Round Yellow Six Weeks, Taylor's Green Pod.*
90. Pods with inappreciable string 91
90. Pods with more or less pronounced string 92
91. Seeds carmine-violet or blackish violet .... *Low's Champion, Warren Bush.*
91. Seeds straw yellow in color .... *Yellow Cranberry, Bountiful.*
92. Seeds sea green in color when dry .... *Wonder of France.*
92. Seeds not sea green in color when dry 93
93. Pods and plants decidedly purplish tinged .... *Blue Pod Butter.*
93. Pods and plants not decidedly purplish tinged 94
94. Plants very spreading 95
94. Plants erect or very erect 96
95. Variety early-intermediate .... *Tennessee Green Pod.*
95. Varieties very late .... *Bayo, Pinks, Red Mexican.*
96. Varieties early or very early .... *Ne Plus Ultra, Veitch's Forcing, Long Yellow Six Weeks.*
96. Varieties not early or very early 97
97. Seeds plum violet or garnet brown .... *Canadian Wonder, Red Kidney, Vick's Prolific Pickler.*
97. Seeds greenish yellow or brown ocher .... *Brown Swedish, Eureka.*
98. Seeds colored near eye only, remaining portion white 99
98. Seeds evenly splashed or colored throughout 100
99. Pods stringless .... *Grenell's Stringless.*
99. Pods stringy .... *Yellow Eye, Improved Yellow Eye, China Red Eye, Vienna Forcing.*
100. Pods round or oval-round at snap stage 101
100. Pods flat at snap stage 105
101. Seeds splashed with reddish shades .... *Red Valentine, Best of All (late type), Longfellow.*
101. Seeds not splashed with reddish shades 102
102. Seeds largely pale buff in color and sparingly splashed with medium fawn. *Giant Forcer.*
102. Seeds not largely pale buff in color and not splashed with medium fawn 103
103. Plants very spreading .... *Golden Refugee, Late Refugee.*
103. Plants erect 104
104. Seeds chocolate brown splashed with maize yellow .... *Henderson's Full Measure.*
104. Seeds purple-violet or bluish black, splashed with pale buff .... *Byer's Bush, Extra Early Refugee.*
105. Leaves and stems decidedly purplish tinged .... *Lightning.*
105. Leaves and stems wholly green 106
106. Seeds splashed with reddish shades and pale buff 107
106. Seeds not splashed with reddish shades and pale buff 110
107. Pods stringless .... *Ruby Horticultural.*
107. Pods stringy 108
108. Plants very erect .... *Warwick, Improved Goddard, Crimson Beauty.*
108. Plants more or less spreading 109
109. Variety very late .... *Hodson Green Pod.*
109. Varieties intermediate or late-intermediate .... *Boston Favorite, Best of All (flat type).*

110. Plants very spreading.................*Galega.*
110. Plants erect or very erect.................111
111. Variety early.................*Mohawk.*
111. Varieties intermediate to very late.................*French Kidney, French Mohawk, Marblehead Horticultural.*

VARIETIES CLASSED AS DISTINCT.

The description of the bean varieties of this bulletin is most conveniently undertaken by describing first those kinds which are distinct or known by well-defined characters. After these types are described the subsidiary sorts, or kinds which are practically duplicates or synonyms of the distinct varieties may next be discussed by reference to the distinct sorts, stating in what respect, if any, they differ from the standard types.

In the following list the different sorts are grouped according to species and subdivided according to habit, whether pole or bush, or whether green or yellow in color of snap pods. Some of the varieties classed as subsidiary undoubtedly come from the same lots of seed as do some of the distinct sorts and are therefore unquestionably identical with them. In other cases, they are undoubtedly selected and harvested separately, and though often of different origin from the distinct sorts, they nevertheless sometimes so closely resemble them as to be either practically identical for all ordinary purposes, or to be classed as merely superior or deteriorated strains. There are no hard and fast rules for making a list of distinct varieties, and the following list can not therefore be said to be an absolute one. The more specialized gardening becomes, the closer are drawn the distinctions between varieties. It can not be expected that seedsmen and experimenters should agree in every case as to when newly discovered types are sufficiently different from recognized sorts to justify naming them as new varieties, or as to the time when enough change has been made in stocks of existing varieties to justify classing them as distinct.

Practically all the distinct varieties now listed by American seedsmen are included in the following list. The only omissions are certain field varieties known only to the produce trade and certain garden varieties of local name not listed by American seedsmen. After the variety name is given the number of seedsmen listing the variety in 1906, and following this are given the seedsmen from whom the seed was obtained and upon whose samples the descriptions are largely based.

ENGLISH BROAD BEANS (VICIA FABA).

This species is a comparatively unimportant one in American gardens and but little attention is paid in this country to variety types of this bean. The ten or more so-called kinds listed by American seedsmen are not always represented by the same types from year to year, as they are in England, and for this reason no attempt is here made to describe the varieties listed by American seedsmen. The species is very different from *Phaseolus lunatus* and *P. vulgaris* not only in seed, pod, and habit of growth, but in general usefulness and value as well. Throughout Europe this bean is largely used as food for man and the plants are extensively grown for stock feeding. In Canada also the plants are grown to some extent for farm purposes, but generally are unsuited to the hot dry climate of most parts of the United States. They may possibly prove profitable in western Washington, where climatic conditions are similar to those of England, or they may prove a success in other parts of the Pacific coast, in Colorado, or in the South during winter. They are grown to a small extent in all these places, but their use has not yet become large in any part of this country. Under the varietal name of Broad Windsor the species is sold in America by 54 seedsmen. This name, however, is more commonly used in the United States to designate the whole class of English Broad beans rather than a distinct varietal type, as in England. Seed of the type commonly sold in this country as Broad Windsor is represented on Plate III, 28. Illustrations of pods and plants are shown in English seed catalogues, in Bailey's Encyclopedia of Horticulture, and in most other works on vegetable varieties.

ASPARAGUS, OR YARD LONG, BEANS (VIGNA SESQUIPEDALIS).

This species, which is variously listed in this country as Yard Long, French Yard Long, Asparagus Pole, Cuban Asparagus Pole, French Asparagus Pole, Japanese Asparagus Pole, and Long-Podded Dolichos, is an unimportant species in the garden and on the farm. There appear to be about a dozen distinct varieties in existence throughout the world, but in this country practically but one sort is in cultivation. Under the varietal name of Yard Long or Asparagus Pole the species has been listed by American seedsmen at least since 1845. The vine, pod, and leaf are very similar to the common cowpea, and the plant should more properly be classed with that vegetable rather than with garden varieties. Some seedsmen, however, recommend the plant for its dry seeds and snap pods, put it is really no more serviceable for this purpose than the common cowpea, which is so much used as snaps, green shell, and dry shell beans throughout the South. Its chief interest to amateurs is mainly on account of its very long pods, which often measure 3 feet or more in length, its climbing habit, and its very large growth of vine. Ripe seeds of the type commonly sold in this country are shown on Plate II, figure 1.

MULTIFLORA, OR RUNNER, BEANS (PHASEOLUS COCCINEUS).

This species, which has sometimes been called *Phaseolus multiflorus* by botanists, is commonly known in this country as Multiflora and in England as Runner beans. The species is a very important one in English gardening, and is represented by many varieties, but in this country practically but four sorts are in cultivation, divided into pole and bush forms.

BUSH VARIETIES.

The bush forms of the Multiflora beans are comparatively new and but little grown. Those described below tend strongly to revert to the pole form and are more or less trailing in habit and never strictly dwarf, like some of the more erect bush varieties of kidney beans.

AROOSTOOK BUSH LIMA.

Listed by 1 seedsman. Seeds tested: Jerrard, 1905, 1906.

Description.—Plant large-medium, very thick stemmed, spreading, with many drooping fruit branches and sometimes many runners, green throughout, very early for Lima or Multiflora class, late compared to Kidney varieties, long in bearing, lightly productive. Leaf very large, medium green, fairly smooth. Very floriferous. Flowers white, extremely large, being several times the size of those of Kidney varieties, 10 to 25 blossoms borne on numerous prominent flower stalks but only a few flowers setting pods. Snap pods varying greatly in size, medium in length, much curved, flat, very dark green, of very rough surface, brittle, stringy, of moderate fiber, fair as to quality, free from anthracnose. Point of pods very short, thick, and curved. Green shell pods borne on numerous large clusters high above foliage, never colored or splashed, about 4¾ inches long, each containing 3 to 5 seeds well separated in pod. Dry seeds very large, thickened, roundish oval through cross section, mostly well rounded at ends, almost straight at eye, very smooth and glossy, solid white, veining absent or indiscernible.

Comparison.—Little known and planted. Not strictly a Lima, at least not belonging to the same species as the common bush Lima, being rather a bush form of White Dutch Runner. Decidedly the earliest variety of the Multiflora class. Ripening several weeks before the true bush Limas it is claimed to be a great acquisition, especially at the extreme North, where bush Limas do not always give full crops. Where right conditions prevail, such as in the eastern part of Washington State, it may prove a valuable substitute for Limas, but in most parts of our country it is very unreliable in both earliness and productiveness and its real value is not yet exactly known. Decidedly the earliest of the Multiflora class and resembling Barteldes's Bush Lima more than any other variety, differing principally in earlier season and smaller size. Seeds fully as large and of nearly as good quality as the true Limas and pods excellent as snaps.

Confusing name.—Early Aroostook Field, a very different type of bean.

History.—Introduced in 1905 by the George W. P. Jerrard Company, who state that the seeds came from a customer.

Illustrations.—Dry seeds are similar to Barteldes's Bush Lima (Pl. IV, 25); cross sections of partially developed pods, to White Dutch Runner (Pl. V, 32 and 33); and green shell pods, to White Dutch Runner (Pl. XVIII, 1), differing principally in larger and flatter shape.

BARTELDES'S BUSH LIMA.

No longer listed by American seedsmen. Seeds tested: Denver Seed and Floral Company, 1905.

Description.—Plant very large, thick stemmed, with many long drooping fruit branches, generally with only few runners, wholly green, early for a Multiflora variety, very late compared to Kidney beans, long in bearing period, generally unproductive in most parts of the country but heavily productive in certain soils and climates. Leaf very large, dark green, fairly smooth. Exceedingly floriferous. Flowers white, extremely large, several times larger than in Kidney varieties, 12 to 30 blossoms borne on each of the numerous prominent flower stalks but only few flowers setting pods. Snap pods varying greatly in size, generally long, much curved, flat, very short, very dark green, of very rough surface, brittle, stringy, of moderate fiber, fair as to quality, free from anthracnose. Green shell pods borne on large clusters well above foliage, never colored or splashed, about 5¾ inches long, and usually containing 4 or 5 seeds well separated in pod. Dry seeds very large, thickened, flattish oval through cross section, mostly well rounded at ends, straight at eye, very smooth and glossy, solid white, veining absent or indiscernible.

Comparison.—Little known or planted. Grown mostly in California, Colorado, and other parts of the West, where it seems to do well. Not strictly a Lima, being rather a bush form of White Dutch Runner and similar to Aroostook Bush Lima previously described, differing principally in larger vine, seed, and pod, greater productiveness, and later season. Under right conditions, it gives green shell pods considerably before White Dutch Runner Pole or the true bush Limas, but season and productiveness are very uncertain in most parts of this country and its real usefulness is not yet fully known. Its green shell beans are almost equal to Limas and its snap pods much superior to the tough Kidney varieties such as Black Valentine and Davis Wax. Prof. L. H. Bailey states the roots are not always fleshy like those of White Dutch Runner and therefore not truly perennial, though probably, with some selection, fleshy roots and a perennial type could be obtained and perpetuated in such climates as southern California. An earlier strain of this variety has recently appeared as Bush Multiflora.

Synonyms.—California Butter (of Haines, Lee, etc.), Mexican Bush Lima.

History.—First introduced about 1890 by F. Barteldes & Co., who state that the seed came from Colorado. The variety was tested in 1886 by L. H. Bailey, who gives a full description of it in Bulletin No. 87 of the Cornell University Agricultural Experiment Station.

Illustrations.—Dry seeds are illustrated on Plate IV, 25; cross sections of partially developed green shell pods resemble White Dutch Runner (Pl. V, 32 and 33), as also the green shell pods (Pl. XVIII, 1), differing principally in larger size and flatter shape.

POLE VARIETIES.

The important varieties of this species are all of the pole form, the value of the bush forms being not yet fully established. For a complete description of existing pole varieties the student should consult English seed catalogues.

SCARLET RUNNER POLE.

Listed by 106 seedsmen. Seeds tested: Buckbee, 1900; Thorburn, 1901, 1902, 1905.

Description.—Vine of very large growth, of fair climbing habit, moderately branched, very thick stemmed, much tinged with purple at stems, very long in bearing, moderately productive. Leaf of medium size, very dark green, with under side of veins much tinged with purple. Flower stalks very large and numerous. Blossoms brilliant scarlet in color, extremely large, very ornamental, about twice the size of those of Kidney varieties, and with 20 to 40 on each flower stalk, but only few setting pods. Snap pods uniform and long-medium in size, much curved, flat, very dark green, often purplish tinged along sutures, of very rough surface, brittle, of very hard flesh, stringy, of moderate fiber, of fair quality, entirely free from anthracnose. Point of pod very short, thick, and curved. Green shell pods full on outside between seeds, decidedly purplish tinged at sutures, about 6¼ inches long, and containing five seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds very large, of medium length, flattish oval through cross section, generally well rounded at ends, usually larger at one end than at the other, mostly straight at eye, violet-black in color except mottled with bluish violet at back and ends.

Comparison.—Little known or cultivated in this country, but largely grown throughout Europe, being used for green shell beans the same as Limas, which can not be successfully grown in the cool climate of England and other European countries. A great many varieties are known to the seed trade, but in the United States only Scarlet Runner and White Dutch Runner are in use. Both varieties are wholly different in appearance and growth of vine from other American beans and hardly recognizable as edible to most Americans, though, nevertheless, they make excellent snaps. They succeed especially well in California, where they are said to give a larger and more continuous supply of snap pods than any other variety. Highly recommended for trial not only for edible pods but also as an ornamental climber.

History.—Grown in this country at least since 1800, and one of the first cultivated varieties.

Illustrations.—Seeds are same size and shape as White Dutch Runner (Pl. IV, 28); snap pods same as White Dutch Runner (Pl. XVIII, 1); cross sections of immature green shell pods also resemble same variety (Pl. V, 32 and 33).

WHITE DUTCH RUNNER POLE.

Listed by 40 seedsmen. Seeds tested: Burpee, 1903; Thorburn, 1897, 1901, 1902, 1905.

Description.—Same as given for Scarlet Runner, except stems and pods are solid green and blossoms and seeds solid white in color.

Comparison.—Usefulness and value about the same as explained for Scarlet Runner.

Synonyms.—Childs's Extra Early Pole Lima, Isbell's Perfect Pole Lima.

History.—One of the oldest existing varieties. Listed by American seedsmen at least since 1825.

Illustrations.—Dry seeds are illustrated on Plate IV, 28; cross section of immature green shell pods on Plate V, 32 and 33, and snap pods on Plate XVIII, 1.

LIMA BEANS (PHASEOLUS LUNATUS).

This species is more extensively cultivated in the United States than in any other country, though there are many forms in use throughout South America and in tropical countries which are not known in the United States. Nearly all foreign sorts are merely local varieties and owing to the fact that they usually have colored seeds, which are not popular in this country, and are also too late in season to be suitable for our climate they are not referred to in the following descriptions. The species is usually divided by American seedsmen into pole and bush varieties, as follows:

BUSH VARIETIES.

The bush varieties of the Lima bean are now used extensively throughout the United States and in some localities have replaced to a considerable extent the pole varieties, which were the only forms known until the introduction of Henderson's Bush Lima in 1889.

BURPEE'S BUSH LIMA.

Listed by 136 seedsmen. Seeds tested: Burpee, 1897, 1898, 1900, 1901, 1904; May, 1897; Thorburn, 1901, 1904.

Description.—Plant large, thick stemmed, erect to somewhat spreading, with occasional runners, always with many outspreading branches, late-intermediate in season, long in bearing, heavily productive. Leaf very large, dark green. Flowers white. Green shell pods dark green, of smooth surface, moderately curved, flat, uniform in size, very large for dwarf Limas, medium for pole Limas, very wide, about $4\frac{1}{8}$ inches long, and generally containing 3 or 4 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Pods borne in clusters of moderate size well up from ground and well toward center of plant. Quality of green shell beans excellent. Dry seeds very large but proportionally short in length, very flattish through cross section, generally well rounded, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—This variety and Henderson's Bush are at present by far the most largely grown bush Limas, though each will probably in time be replaced by other more desirable sorts, the former by Wood's Prolific Bush, and the latter by Wonder Bush. Unsurpassed for productiveness, high quality, and immense, handsome, showy pods and seeds, or about equal in these respects to Wonder Bush and Wood's Prolific Bush, but not adapted to as many conditions or as generally serviceable as Henderson's Bush and Wood's Prolific Bush. Too late for maturing full crops at the extreme north and more subject to mildew than the glossy-leaved or small-seeded sorts. Most like Wonder Bush, differing principally in larger growth, more spreading habit, and later season.

Synonyms.—Elliott's Bush Lima, Large White Bush Lima, Mammoth Bush Lima, Willet's Bush Lima.

History.—Introduced in 1890 by W. Atlee Burpee & Co., who state the variety originated with Ashur Palmer, of Kennett Square, Pa. It is said to have come from a single bush plant found about 1884 in a field of King of Garden Pole Lima on Mr. Palmer's farm.

Illustrations.—Green shell pods are illustrated on Plate XXI, 2; cross section of green shell pod and of dry seed is similar to Large White Pole (Pl. V, 31, and Pl. III, 22, respectively).

DREER'S BUSH LIMA.

Listed by 68 seedsmen. Seeds tested: Burpee, 1898, 1900, 1903; Dreer, 1906.

Description.—Plant large, very coarse branched, very spreading, almost creeping in habit, with many runners lying flat on the ground, late, long in bearing, heavily productive. Leaf very large, of a peculiar grayish green color, with a smooth but not glossy surface. Flowers white. Green shell pods medium green, of smooth surface, straight, somewhat turned back at stem end, uniform in size, large-medium for dwarf Limas, small for pole Limas, very thick through cross section, about $2\frac{7}{8}$ inches long, usually containing 3 or 4 seeds tightly crowded in pod, decidedly rigid at ventral suture. Point or spur of pod absent or insignificant. Pods borne in moderate-sized clusters close to ground. Quality of green shell beans excellent. Dry seeds large, very short, almost as wide as long, flattish oval through cross section, truncate or rounded at ends, generally larger at one end than at other, straight or rounded at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—One of the three most largely grown as well as the latest in season of the bush Limas and the only bush variety of the potato or thick-seeded class. Often considered as first in productiveness and quality, but experiments vary greatly, many tests giving first place to Dreer's Bush. Succeeds especially well on light soil and in dry seasons. Probably a somewhat more reliable cropper than Burpee's Bush but not as sure or as generally serviceable as Wood's Prolific Bush, while pods are too close to the ground to be easily gathered and vines more subject to mildew than the small-seeded, glossy-leaved sorts. Very different in habit from other bush Limas. Unlike Burpee's Bush principally in having shorter, much thicker pods and seeds, more spreading habit, and narrower, more grayish green leaves. Seeds, pods, and leaves same as Dreer's Pole except larger.

Synonyms.—Challenger Bush Lima, Dallas Bush Lima, Kumerle Bush Lima, Potato Bush Lima, Salzer's Bush Lima, Thorburn's Bush Lima.

History.—Introduced in 1891 by Henry A. Dreer and derived from the same stock as Kumerle or Thorburn's Bush, which was introduced two years previous to Dreer's Bush.

Illustrations.—Dry seed, green shell pod, cross section of green shell pod, and leaf are similar to Dreer's Pole. (Pl. II, 23; Pl. XXII, 3; Pl. V, 36; and Pl. XXIV, 7, respectively.)

HENDERSON'S BUSH LIMA.

Listed by 136 seedsmen. Seeds tested: Burpee, 1900, 1901; Ferry, 1903; Fish, 1903, 1904; Henderson, 1905; May, 1897; Thorburn, 1901.

Description.—Plant small for a bush Lima, slender stemmed, very erect, bushy, without runners or decidedly spreading branches, very early, long in bearing, heavily to moderately productive. Leaf small, very dark, glossy green in color, very smooth, very stiff, moderately wide across leaflets. Very floriferous. Flowers white. Green shell pods rich, dark green, of smooth surface, straight, very uniform in size, very small, very flat, moderately wide, about 2¾ inches long, containing 3 or 4 seeds well separated in pod. Point or spur of pod very small or almost absent. Pods borne in numerous large clusters well above plant and well toward center. Quality of green shell beans fair to good. Dry seeds large, proportionally short, decidedly flattish through cross section, rounded or slightly truncate at ends, larger at one end than at other, almost straight at eye, very distinctly veined, solid creamy white.

Comparison.—One of the two most largely grown bush Limas and decidedly the earliest of the true Lima class. As sure a cropper as any, making crops in extremely dry or wet weather and under other adverse conditions where Burpee's Bush and Dreer's Bush are often failures. Unusually free from mildew, almost as hardy as Jackson Wonder, and an especially good variety on light soils. As it endures extremely hot sun much better than the larger seeded sorts it has always been a favorite in the South, while in the extreme North it matures good crops where late varieties often fail to do so. The quality of its green shell beans is not generally considered equal to that of Burpee's Bush or Dreer's Bush, but the difference is not so great as is usually claimed, some people, in fact, having little choice between the three varieties. Most like Wood's Prolific Bush, differing principally in smaller growth, a few days earlier season, smaller seeds, and smaller pods without twisting from side to side. Pods similar to Willow-Leaved Bush and Jackson Wonder and except for smaller size the same as those of Small White Pole.

Synonyms.—Carolina Bush Lima, Sieva Bush Lima, Small White Bush Lima.

History.—Introduced in 1889 by Peter Henderson & Co., and described by them as having originated from a single plant found in the vicinity of Lynchburg, Va., about 1883. In 1885 the variety passed into possession of T. W. Wood & Sons, who sold the entire stock in 1887 to Peter Henderson & Co.

Illustrations.—The dry seed is similar to Small White Pole Lima (Pl. IV, 27), as also are the cross section, green shell pod, and leaf (Pl. V, 34; Pl. XXI, 5; and Pl. XXIV, 5, respectively), all differing principally in larger size.

JACKSON WONDER BUSH LIMA.

Listed by 7 seedsmen. Seed tested: Burpee, 1898, 1901; Hastings, 1905; Thorburn, 1897.

Description.—Plant large-medium in size, somewhat slender stemmed, productive of many erect fruit stems, quite spreading in habit, often producing many runners, early-intermediate in season, long in bearing, heavily productive. Leaf of medium size, very dark, glossy green in color, very smooth, very stiff, with long, narrow, pointed leaflets. Very floriferous. Flowers white. Green shell pods of a rich, dark green color, of very smooth surface, straight, very flat, very uniform in size, small-medium, moderately wide, about 3¼ inches long, and containing 3 or 4 seeds much separated in pod. Point or spur of pod very small or almost wanting. Pods borne prominently above foliage and in very large clusters. Quality of green shell beans fair to good. Dry seeds of medium size, proportionally short, very flattish through cross section, truncate or rounded at ends, decidedly larger at one end than at other, straight at eye, flesh yellowish in color, freely splashed with pansy violet, sometimes almost solid pansy violet.

Comparison.—Little known and planted. Cultivated mostly in the South. The hardiest of all bush Limas and about as sure a cropper as Henderson's Bush, from which it differs in larger vine, greater productiveness, larger pods, and large seeds of different color. Possesses all the good qualities of the small-seeded sorts, but never popular because of objectionable runners and colored seeds. Vine much more spreading than Burpee's Bush, but not creeping in habit like Dreer's Bush. Leaf indistinguishable from that of Willow-Leaved Bush and pods also resembling same variety, differing principally in slightly narrower, longer shape and seed of larger size.

Synonym.—Steckler's Calico Bush Lima.

History.—Introduced in 1891 by several American seedsmen and said to have originated in the vicinity of Atlanta, Ga.

Illustrations.—Dry seeds are illustrated on Plate II, 22; green shell pod and cross section of same are similar to Small White Pole (Pl. XXI, 5, and Pl. V, 34, respectively); leaflets are about twice as wide as those of Willow-Leaved Pole (Pl. XXIII, 2), approaching more the shape of Henderson's Bush.

WILLOW-LEAVED BUSH LIMA.

Listed by 3 seedsmen. Seeds tested: Burpee, 1900, 1901; May, 1904, 1905.

Description.—Plant very small for a bush Lima, somewhat slender stemmed, very erect, bushy, without runners or decided spreading branches, very early, long in bearing, heavily to moderately productive. Leaf of medium size, of very dark, glossy green color, very smooth, very stiff, and with very long, narrow, pointed leaflets; the leaves, however, are very irregular in form, often approaching the broad shape of Henderson's Bush Lima. Very floriferous. Flowers white. Green shell pods of dark green color, of smooth surface, straight, very flat, very uniform in size, moderately wide, small for a bush Lima, about 2⅞ inches long, and containing 3 or 4 seeds much separated in pod. Point or spur of pod very small or almost absent. Pods borne on numerous large clusters well above plant and well toward the center. Quality of green shell beans fair to good. Dry seed large, proportionally short, decidedly flat through cross section, rounded or slightly truncate at ends, larger at one than at other, almost straight at eye, very distinctly veined, solid creamy white.

Comparison.—Little known and planted. Cultivated mostly in the South. Of usefulness similar to Henderson's Bush, but apparently less productive and hardy. More like that variety than any other, differing principally in shape of leaves, decidedly smaller vine, and slightly larger and proportionally narrower pods, which are same as those of Willow-Leaved Pole except smaller.

History.—Introduced in 1901 by W. Atlee Burpee & Co., as Burpee's Willow-Leaved Bush.

Synonyms.—Burpee's Willow-Leaved Bush Lima, Southern Willow-Leaved Sewee Lima.

Illustrations.—Dry seed is similar to Small White Pole (Pl. IV, 27); green shell pod and cross section of same to Small White Pole (Pl. XXI, 5, and Pl. V, 34, respectively); and leaf to Willow-Leaved Pole (Pl. XXIII, 2).

WONDER BUSH LIMA.

Listed by 24 seedsmen. Seeds tested: Dreer, 1905, 1906; Ferry, 1902, 1904; Fish, 1904.

Description.—Plant large, thick stemmed, erect, compact, with few drooping branches, but without real runners, intermediate in season, long in bearing, heavily productive. Leaf very large, dark green. Flowers white. Green shell pods dark green, of smooth surface, moderately curved, flat, very uniform in size, wide, very large for dwarf Limas, medium for pole Limas, about 4½ inches long, usually containing 3, sometimes 4, seeds well separated in pod. Point or spur of pod absent or insignificant. Pods borne in clusters of moderate size, well up from ground and well toward center of plant. Quality of the green shell beans excellent. Dry seeds very large, proportionally short, very flattish through cross section, larger at one end than at other, incurved at eye, very distinctly veined, white with slightly greenish tinge.

Comparison.—New and valuable but as yet not extensively cultivated. The best of large-seeded bush Limas for general cultivation, and largely replacing the old type of Burpee's Bush Lima, some seedsmen, in fact, having discarded the old type altogether, selling only this improved strain. Differs from its parent principally in earlier season, more bushy, compact habit, and entire freedom from runners. Although not quite as large or as vigorous in vine, its pods and seeds are fully as large and numerous as those of its parent.

History.—Introduced in 1898 as Dreer's Wonder Bush by Henry A. Dreer, who writes that the variety is a selection of Burpee's Bush and was first discovered on Long Island.

Synonyms.—Burpee's Quarter Century Bush Lima, Dreer's Wonder Bush Lima, Quarter Century Bush Lima.

Illustrations.—Dry seed and cross section of green shell pod are similar to Large White Pole (Pl. III, 22, and Pl. V, 31, respectively); green shell pods same exactly as Burpee's Bush (Pl. XXI, 2).

WOOD'S PROLIFIC BUSH LIMA.

Listed by 18 seedsmen. Seeds tested: Burpee, 1901; Wood, 1904, 1905.

Description.—Plant of medium size, somewhat slender stemmed, very erect and bushy, without runners or decided spreading branches, early, long in bearing, heavily productive. Leaf small for a bush Lima, very dark, glossy green, very smooth, moderately wide across leaflets. Very floriferous. Flowers white. Green shell pods dark green, of smooth surface, very uniform in shape, straight at back and front but often curling from side to side, of medium size, moderately wide, very flat, about 3½ inches long, and containing 3 or 4 seeds well separated in pod. Point or spur of pod very small or almost absent. Pods borne in large, numerous clusters well above plant and well toward its center. Quality of green shell beans fair to good. Dry seeds large, proportionally short, decidedly flattish through cross section, rounded or slightly truncate at ends, larger at one end than at other, almost straight at eye, very distinctly veined, solid creamy white.

Comparison.—New and as yet not extensively cultivated, but probably will in time largely replace the old Henderson's Bush, as the objectionable small seed and pod of that variety have been much enlarged in this valuable sort. Excepting for being a few days later, all the excellent qualities of the Henderson's Bush have been fully retained or perceptibly increased. Vine somewhat larger and more vigorous than Henderson's Bush and pods straighter and slightly curling from side to side. Pods same as Wood's Improved Pole except smaller.

Synonyms.—Henderson's Improved Bush Lima, King's Improved Bush Lima, Prolific Bush Lima, St. Louis Seed Co.'s Improved Bush Lima, Tucker's Prolific Bush Lima.

History.—Introduced in 1899 by T. W. Wood & Sons, who state that it is a sport from Henderson's Bush and was obtained from a farmer near Richmond, Va.

Illustrations.—Dry seeds are similar to Wood's Improved Pole (Pl. IV, 26); green shell pod and cross section of same to Wood's Improved Pole (Pl. XXI, 4, and Pl. V, 35, respectively); leaf to Small White Pole (Pl. XXIV, 5).

POLE VARIETIES.

The pole sorts described below represent as great variation in season and productiveness of plant and of color, shape, and size of pod as do the bush varieties. All are of American origin.

DREER'S POLE LIMA.

Listed by 58 seedsmen. Seeds tested: Burpee, 1900; Dreer, 1906; Henderson, 1902; Johnson & Stokes, 1904, 1905; May, 1897; Thorburn, 1901.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, very late, very heavily productive, long in bearing. Leaf very large, dark green, smooth, of narrower and more pointed leaflets than the large, flat-seeded sorts. Flowers white. Green shell pods medium green, straight, generally turned back at stem end, uniform in size, large, wide, exceedingly thick, ridged along ventral suture, about 3¾ inches long, and usually containing 4 or 5 seeds very crowded in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds large, almost as wide as long, flattish oval through cross section, rounded or truncate at ends, generally larger at one end than at other, straight or rounded at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—One of the most largely grown pole Limas and the only potato-seeded variety of the class. More largely planted in the East and North than in the South and West. Excellent for home or garden, and next to the small-seeded sorts the most certain cropper and often the most productive. Generally described as the best in quality, but tastes differ greatly in deciding quality in Limas and the difference between Lima varieties in this particular can not be said to be important. Pod and leaf very similar to Dreer's Bush Lima, differing principally in larger size and later season.

Synonyms.—Challenger Pole Lima, Elliott's Improved Pole Lima, Noll's Ideal Potato Pole Lima, Potato Pole Lima, Shotwell's Pole Lima, Walter's Prolific Pole Lima.

History.—Introduced in 1875 by Henry A. Dreer, who writes that the variety was obtained about 1857 from H. Kimber, of Kimberton, Pa. The old stock of Dreer's Pole is now probably extinct, the larger-podded Challenger having been substituted for the original type introduced by Henry A. Dreer.

Illustrations.—Dry seeds, leaf, green shell pods, and cross section of green shell pod are illustrated on Plate II, 23, Plate XXIV, 7, Plate XXII, 3, and Plate V, 36, respectively.

EXTRA EARLY JERSEY POLE LIMA.

Listed by 71 seedsmen. Seeds tested: Burpee, 1900; Henderson, 1902; Johnson & Stokes, 1904–1906; May, 1897; Thorburn, 1901.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, early, heavily to moderately productive, moderate to long in bearing period. Leaf very large, dark green. Flowers white. Green shell pods dark green, moderately curved, fairly uniform, of medium size, wide, flat, about 4 inches long, and usually containing 3 or 4 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—A well-known standard variety, being perhaps one of the six most largely grown pole Limas. Although generally satisfactory for home or market, it can not be recommended very highly because Seibert's Pole and Leviathan Pole are so much better for every purpose for which this variety is usually recommended. Most like Seibert's Lima, differing principally in smaller pods, smaller seeds, and less productive vines. Often misrepresented by inferior and mixed stocks in same way as described for King of Garden.

Synonyms.—Bliss's Extra Early Pole Lima and probably several more whose identification has not as yet been positively determined.

History.—Introduced about 1883. Same as the variety known at that time as Bliss's Extra Early. Introduced in 1878 by the late firm of B. K. Bliss & Sons.

Illustrations.—Dry seeds are similar to Large White Pole Lima (Pl. III, 22); green shell pods to Burpee's Bush Lima and Seibert's Pole Lima (Pl. XXI, 2 and 3); and cross section of pod to Large White Pole Lima (Pl. V, 31).

FLORIDA BUTTER POLE LIMA.

No longer listed by American seedsmen. Seeds tested: Hastings, 1905.

Description.—Trials too poor to make full description of type, but vine and pod evidently of same character as those of the small-seeded Limas, differing principally from most of this class in later season and larger growth. Pods borne in remarkably large clusters, curled from side to side, and almost as large as those of Wood's Improved Pole Lima. Dry seeds medium in size for a Lima, almost as wide as long, flattish through cross section, truncate or rounded at ends, invariably straight at eye, milky white, blotched with brownish black at back and one end.

Comparison.—Little known and planted. Apparently suitable only for the South, where it is said to be the most prolific of all Limas and an especial favorite of certain Florida farmers. Further trials are necessary before positively stating its real usefulness and value.

History.—Probably of southern origin. Apparently last listed by American seedsmen in 1901, in which year it was catalogued by H. B. Hastings & Co. Possibly same as one of the speckled Limas listed by American seedsmen eighty or more years ago, but since dropped from seed lists.

Illustrations.—Dry seeds are illustrated on Plate II, 21; green shell pods are similar to Wood's Improved Pole Lima (Pl. XXI, 4) and cross section of pod to Wood's Improved Pole Lima (Pl. V, 35).

FORD'S MAMMOTH POLE LIMA.

Listed by 27 seedsmen. Seeds tested: Fish, 1903; Johnson & Stokes, 1902, 1904–1906; Thorburn, 1897; Vaughan, 1906.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, late, very heavily productive, long in bearing. Leaf very large, dark green. Flowers white. Green shell pods dark green, straight, inclined to curl from side to side, somewhat depressed between seeds, fairly uniform in size, very large, of good width, distinctly narrow compared with other Limas, about 6 inches long, and usually containing 5 or 6 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—A well-known standard variety, being perhaps one of the six most largely grown pole Limas. Longest podded of all Limas excepting Long-Podded Pole. Same as King of Garden in general usefulness and value, differing principally in longer, proportionally narrower, and straighter pods with more tendency to curl from side to side. Much misrepresented by inferior and mixed stocks in same way as described for King of Garden.

History.—Introduced in 1893 by Johnson & Stokes, who write that the variety originated with James Ford, a market gardener of Philadelphia, Pa.

Illustrations.—Dry seeds and cross section of green shell pods are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively); green shell pods resemble King of Garden (Pl. XXII, 1).

HENDERSON'S IDEAL POLE LIMA.

Listed by 1 seedsman. Seeds tested: Henderson, 1906.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, late, very heavily productive, long in bearing. Leaf very large, dark green. Flowers white. Green shell pods dark green, very straight, flat, very uniform in size, very large, about 5½ inches long, and usually containing 5 or 6 seeds well separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—New and as yet little known and planted. For combination of large, straight, handsome pods, large seed, and great productiveness, this variety is superior to any other sort. It is the best of all Limas for main crop, and although merely an improvement over King of Garden, it is so distinctly superior to present type of that variety as to deserve a new name. Its superiority is especially noticeable in its straighter pods and freedom from the many undersized, curved, twisted, and imperfectly shaped pods such as are commonly found in most stocks of King of Garden.

History.—Introduced in 1906 by Peter Henderson & Co.

Illustrations.—Dry seeds and cross section of green shell pods are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively), and green shell pods to King of Garden (Pl. XXII, 1).

KING OF GARDEN POLE LIMA.

Listed by 122 seedsmen. Seeds tested: Burpee, 1897, 1900; Ferry, 1906; Fish, 1903; Johnson & Stokes, 1902, 1904, 1906; Thorburn, 1901, 1904, 1905.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, late, very heavily productive, long in bearing. Leaf very large, dark green. Flowers white. Green shell pods dark green, slightly curved, flat, uniform in size, wide, very large, about 5¾ inches long, and usually containing 4 to 6 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—More largely grown than any other pole Lima. For combination of large, handsome pods, large seed, and great productiveness, this variety is surpassed only by Ford's Mammoth and Henderson's Ideal. Like many others of the standard pole Limas, it is often misrepresented by inferior and mixed stocks, much of the seed which is now sold as King of Garden being neither planted nor selected especially for seed, but bought of farmers who originally had sown the seed for the produce trade. The cheaper seed of the Lewis variety, so largely planted in southern California as a field bean, and inferior stocks of King of Garden and other varieties are thus often disposed of by so-called seed growers. More like Large White Lima and Henderson's Ideal than any other pole Lima, differing from former principally in later season and larger vine, pod, and seed.

Synonyms.—Schwill's Monstrous Pole Lima, and probably several more whose identification has not yet been positively determined.

History.—Introduction in 1880 by Frank S. Platt. Developed by selection from Large White Pole Lima.

Illustrations.—A green shell pod is illustrated on Plate XXII, 1; dry seed and cross section of pod are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively).

LARGE WHITE POLE LIMA.

Listed by 134 seedsmen. Seeds tested: Burpee, 1897, 1900; Ferry, 1906; Johnson & Stokes, 1906; May, 1897; Thorburn, 1901, 1905.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, intermediate in season, heavily productive, long in bearing. Leaf very large, dark green. Green shell pods dark green, moderately curved, flat, uniform in size, very wide, large-medium, about 4½ inches long, and usually containing 3 to 5 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—Next to King of Garden, the most largely grown of all pole Limas. Excellent for either home or garden and suitable for all sections of the country. Not quite so large or so handsome as King of Garden and Henderson's Ideal, but a good all-round sort and always attractive and salable. Often misrepresented by inferior and mixed stocks in same way as King of Garden. Intermediate between Extra Early Jersey and King of Garden in season, productiveness, and size of pod and seed.

Synonyms.—May's Champion Pole Lima and probably several more whose identification has not as yet been positively determined.

History.—Name has been in common use in this country for over one hundred years, though the type has probably not always been the same as the present one.

Illustrations.—Dry seeds and a cross section of a green shell pod are illustrated on Plate III, 22, and Plate V, 31, respectively. Green shell pods are similar to Burpee's Bush Lima (Pl. XXI, 2).

LEVIATHAN POLE LIMA.

Listed by 6 seedsmen. Seeds tested: Henderson, 1902, 1904, 1906.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, green throughout, early, heavily productive, of moderate to long bearing period. Leaf very large, dark green. Flowers white. Green shell pods dark green, very straight, flat, very uniform in size, wide, very large, about 5¼ inches long, and usually containing 4 to 6 seeds somewhat separated in pods. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—New and as yet little known or planted. Decidedly larger, straighter, and more handsome than either Seibert's Pole or Extra Early Jersey Pole, decidedly the earliest of the large-seeded sorts, and by far the best extra early large-seeded Lima. Excellent for either home or market. Most like Henderson's Ideal, differing principally in smaller, fewer seeded, and proportionally narrower pods, earlier season, and less vigorous and productive vines.

History.—Introducd in 1900 by Peter Henderson & Co., who write that the variety came from Bergen County, N. J.

Illustrations.—A green shell pod is illustrated on Plate XXII, 2. Dry seed and cross section of pod are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively).

LONG-PODDED POLE LIMA.

Listed by 1 seedsman. Seeds tested: Childs, 1905, 1906.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, green throughout, very late, lightly productive, long in bearing. Leaf very large, dark green. Flowers white. Green shell pods dark green, moderately curved, flat, much inclined to curl and twist from side to side, varying considerably in size, very wide, very large, about 6 inches long, and usually containing 4 to 6 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seed very large, almost as broad as long, very flattish through cross section, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—Little known and planted. Interesting for immense size of pods, which are often larger than those of any other variety, but so unproductive and pods so twisted, curly, and unattractive that variety is of little practical value. Pod and vine most like King of Garden, differing principally in productiveness and in curly, twisted pods.

History.—Introduced in 1905 by John Lewis Childs, who writes that the variety was developed by A. Vander Veer, of Queens, N. Y.

Illustrations.—Dry seed and cross section of pod are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively); green shell pod is about as long and wide as King of Garden (Pl. XXII, 1).

MOTTLED POLE LIMA.

No longer listed by American seedsmen. Seeds tested: Sample obtained from an unknown fruit peddler in Washington, D. C., during summer of 1904.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, green throughout, intermediate-late in season, heavily productive, long in bearing. Leaf small for a Lima, very dark green, smooth, almost as glossy and stiff as the small-seeded Limas, moderately wide across leaflets. Flowers white.

Green shell pods medium green with slight suggestion of veining and mottling, especially near dorsal and ventral sides, of somewhat coarse surface, moderately curved, very flat, often much depressed between seeds, uniform in size, wide, much narrowed at stem end, large-medium, about 3⅝ inches long, and rarely containing more than 3 seeds, always much separated in pods. Point or spur of pod very small or almost absent. Pods borne in large clusters. Quality of green shell beans excellent. Dry seeds very large, almost as wide as long, very flattish through cross section, rounded or truncate at ends, straight or incurved at eye, white with plum-violet splashing.

Comparison.—Little known and planted. Interesting because of brilliantly splashed seeds, but apparently of no practical value except possibly for hardiness. Pods often imperfectly shaped, very flat for a large-seeded sort, and decidedly unattractive in color and smooth surface. Most like Large White Pole Lima, but differing greatly in color, texture, smaller size, and greater flatness of both seed and pod, and in decidedly smaller, darker green, smoother, and more glossy leaves, which approach in color, size, and texture those of Small White Pole Lima.

History.—Probably same as one of the large-seeded spotted Limas catalogued by seedsmen about 1865 and still found growing in private gardens in the Southern States.

Illustrations.—Dry seeds are illustrated on Plate III, 25, and green shell pods on Plate XXI, 1.

SALEM MAMMOTH POLE LIMA.

Listed by 5 seedsmen. Seeds tested: Johnson & Stokes, 1905, 1906.

Description.—Vine of very large growth, of good climbing habit, much branched, thick stemmed, green throughout, late, heavily productive, long in bearing. Leaf very large, dark green. Flowers white. Green shell pods dark green, much curved, flat, uniform in size, very wide, large-medium, about 4 inches long, and usually containing 3 seeds somewhat separated in pod. Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as broad as long, flattish through cross section, but decidedly thicker than other large-seeded sorts, generally well rounded at ends, usually larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—Except for being grown extensively in parts of New Jersey, this variety is little known or planted throughout the country. Its value lies in the large size of its seed, which average larger than those of any other variety. Its pods are peculiar for their great width and curved shape, but are few seeded and short in length, the size of seeds seemingly being attained at expense of size of pods and number of seeds. Most like Large White Pole Lima, differing principally in greater width, thickness, and curvature of pod, and larger, fewer seeds.

History.—Listed by Johnson & Stokes at least since 1882, and apparently introduced by them. Said to have originated in Salem County, N. J.

Illustrations.—Seeds and cross section of pod are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively); and green shell pods to Burpee's Bush Lima (Pl. XXI, 2), differing principally in being much thicker.

SEIBERT'S POLE LIMA.

Listed by 61 seedsmen. Seeds tested: Ferry, 1904, 1906; Fish, 1903; Ford, 1904; Gregory, 1897; Johnson & Stokes, 1902, 1904; Livingston, 1904, 1905.

Description.—Vine of large growth, of good climbing habit, much branched, thick stemmed, green throughout, early, heavily productive, long in bearing. Seed very large, dark green. Flowers white. Green shell pods dark green, moderately curved, flat, inclined to curl and twist from side to side, uniform in size, wide, large-medium, about 4¼ inches long, and usually containing 3 or 4 seeds somewhat separated in pod.

Point or spur of pod absent or insignificant. Quality of green shell beans excellent. Dry seeds very large, almost as broad as long, very flattish through cross section, generally well rounded at ends, generally larger at one end than at other, incurved at eye, very distinctly veined, white with slight greenish tinge.

Comparison.—A well-known standard variety and one of the six most largely grown pole Limas. Larger seeded and possibly sometimes more productive than Leviathan Pole, but pods not nearly as large, straight, handsome, or as early in season. Next to Leviathan it is the best of the extra early large-seeded sorts. Most like Extra Early Jersey Lima, differing principally in earlier season and larger, wider pods often twisted from side to side.

History.—Introduced in 1895 by D. M. Ferry & Co. and originated in Ohio by a Mr. Seibert.

Illustrations.—Green shell pods are illustrated on Plate XXI, 3; seeds and cross section of pod are similar to Large White Pole Lima (Pl. III, 22, and Pl. V, 31, respectively).

SMALL WHITE POLE LIMA.

Listed by 43 seedsmen. Seeds tested: Burpee, 1900; Ferry, 1906; Fish, 1903; Rice, 1905; Thorburn, 1905.

Description.—Vine of large-medium growth, of good climbing habit, much branched, somewhat slender stemmed for a Lima, green throughout, very early, moderately to heavily productive, long in bearing. Leaf small, very dark green, very smooth, very glossy, very stiff, moderately wide across leaflets. Very floriferous. Flowers white. Green shell pods of a rich, dark green color, of very smooth surface, straight, very flat, very uniform in size, moderately wide, very small, about 3 inches long, and usually containing 3 or 4 seeds decidedly separated in pods. Point or spur of pod very small or almost absent. Pods borne on large, numerous clusters. Quality of green shell beans fair to good. Dry seeds small for a Lima, almost as broad as long, decidedly flat through cross section, rounded or slightly truncate at ends, larger at one end than at other, almost straight at eye, very distinctly veined, of a solid creamy white color.

Comparison.—One of the most largely grown pole Limas. Extensively planted in the South, where all the stiff glossy-leaved types succeed best. As sure a cropper as any other pole variety, ranking among pole Limas where Henderson's Bush does among the bush sorts. Where small pods and seeds are objectionable, it will generally be found that Wood's Improved Pole is more satisfactory than this variety. Most like Wood's Improved Pole Lima, differing principally in earlier season, smaller vine and pod, and almost total absence of curled or twisted pods. Pods same as Henderson's Bush Lima except larger.

Synonyms.—Adam's Everbearing Cluster Butter Pole Lima, Carolina Pole Lima, Carolina Sewee Pole Lima, Frost Pole Lima, Saba Pole Lima, Sewee Pole Lima, Sieva Pole Lima, Small Carolina Pole Lima.

History.—Name has been in use in this country at least since 1830 and the type was one of the first cultivated Limas. Known at various times as Frost, Carolina, Sieva, Sewee, Saba, Sivy, Civet, Sky, West Indian, Butter Beans, and Bushel Beans.

Illustrations.—Dry seeds, cross section of pod, green shell pods, and leaf are illustrated on Plate IV, 27, Plate V, 34, Plate XXI, 5, and Plate XXIV, 5, respectively.

WILLOW-LEAVED POLE LIMA.

Listed by 6 seedsmen. Seeds tested: Hastings, 1904; Johnson & Stokes, 1897; Rice, 1905; Schwill, 1905; Steckler, 1904.

Description.—Vine of medium growth, of good climbing habit, much branched, slender stemmed for a Lima, green throughout, very early, moderately productive, long in bearing. Leaf of medium size, very dark green, very smooth, very stiff, very glossy, and of very long, extremely narrow, pointed leaflets, but leaf type not well fixed in shape, the leaflets often being quite wide and approaching in shape those of Small White Pole Lima. Very floriferous. Flowers white. Green shell pods of a rich, dark green color, of very smooth surface, straight, very flat, very uniform in size, moderately wide, very small, about 3⅛ inches long, and usually containing 3 to 4 seeds decidedly separated in pod. Point or spur of rod very small or absent. Pods borne on large numerous clusters. Quality of green shell beans fair to good. Dry seeds large, nearly as broad as long, decidedly flat through cross section, rounded or slightly truncate at ends, larger at one end than at other, almost straight at eye, very distinctly veined, of a solid creamy white color.

Comparison.—Little known and planted. Cultivated mostly in the South. Interesting on account of the peculiar shape of its leaves, but apparently of no superior value or at least generally less productive and hardy than Small White Pole Lima, from which it differs in appearance principally in shape of leaves, decidedly smaller vine, and slightly longer and proportionally narrower pod, which are same as those of Willow-Leaved Bush Lima except larger.

Synonym.—Southern Willow-Leaved Sewee Pole Lima.

History.—Introduced in 1891 by W. Atlee Burpee & Co.

Illustrations.—A leaf is illustrated on Plate XXIII, 2; seeds are similar to Small White Pole Lima (Pl. IV, 27), as also are the green shell pods (Pl. XXI, 5).

WOOD'S IMPROVED POLE LIMA.

Listed by 1 seedsman. Seeds tested: Wood, 1904–1906.

Description.—Vine of large growth, of good climbing habit, much branched, slender stemmed for a Lima, green throughout, early, heavily productive, long in bearing. Leaf small-medium, very dark green, very smooth, very glossy, very stiff, moderately wide across leaflets. Very floriferous. Flowers white. Green shell pods of a rich, dark green color, of very smooth surface, straight, very flat, often inclined to curl from side to side, very uniform in size, moderately wide, very small, about 3¾ inches long, and usually containing 3 or 4 seeds much separated in pod. Point or spur of pod very small or almost absent. Pods borne on large, numerous clusters. Quality of green shell beans fair to good. Dry seed small-medium in size for a Lima, almost as broad as long, very flat through cross section, rounded or slightly truncate at ends, larger at one end than at other, almost straight at eye, very distinctly veined, of a solid creamy white color.

Comparison.—Little known and planted. The best of the small-seeded pole Limas, possessing not only all the good qualities of the small-seeded sorts, but superior in being larger podded, more vigorous, and productive. Most like Small White Lima, differing principally in larger, straighter pods having a tendency to curl from side to side. Pods same as Wood's Prolific Bush except smaller.

Synonyms.—King's Improved Pole Lima, Nichol's Medium Butter Pole Lima.

History.—Introduced by T. W. Wood & Sons, by whom it has been listed at least since 1893.

Illustrations.—Dry seeds, green shell pods, and cross section of same are illustrated on Plate IV, 26, Plate XXI, 4, and Plate V, 35; leaf is similar to White Pole Lima (Pl. XXIV, 5).

KIDNEY BEANS (PHASEOLUS VULGARIS.)

This species, which is the common cultivated bean of all the North and South American countries, is represented by more distinct varieties than any other species cultivated in American gardens. It is commonly divided into green-podded bush, wax-podded bush, green-podded pole, and wax-podded pole varieties.

BUSH GREEN-PODDED.

This is the most important class of the Kidney beans and the only one which is grown to any extent as a field crop. Being so largely cultivated for its dry seed, the class naturally contains more tough-podded varieties than the wax-podded class, though many of the varieties are fully as good in quality and, taken as a whole, the varieties are even more extensively used as snaps than are the wax-podded kinds.

BEST OF ALL BUSH.

Listed by 43 seedsmen. Seeds tested: Burpee, 1897; Ferry, 1900; Keeney, 1904–1906; Rice, 1905, 1906; Steckler, 1904, 1905; Thorburn, 1901, 1902.

Description of late or true type.—Plant large, spreading extensively over ground, with heavy, thick-stemmed, drooping branches, without real runners, wholly green, very late, long in bearing, heavily to moderately productive. Leaf very large, dark green, wide across leaflets, and of very rough surface. Flowers light pink. Snap pods somewhat variable in size, very long, straight, oval-round through cross section, often twisted or bent, medium green, brittle, stringy, of small fiber, of good quality, fairly free from anthracnose. Point of pod short and either slightly curved or straight. Green shell pods borne mostly below foliage, sometimes sparingly splashed with light red, fairly full on outside between seeds, rarely with undeveloped seeds, generally regular in shape, about 7⅛ inches long, and usually containing 6 to 8 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size and length, roundish oval through cross section, rounded or truncate at ends, nearly straight at eye, of pale buff color, freely splashed with purplish red.

Description of early or flat-podded type.—Plant large, slightly spreading, with occasional outstretched branches but without real runners, thick stemmed, wholly green, intermediate in season, of moderate bearing period, heavily to moderately productive. Leaf large, dark green, wide across leaflets, and of rough surface. Flowers light pink. Snap pods varying greatly in size, long-medium, slightly curved, flat, medium green, tough, very stringy, of much fiber, poor in quality, free from anthracnose. Point of pod small and either straight or slightly curved. Green shell pods borne both above and below foliage, moderately splashed with light red, much depressed between seeds, often containing undeveloped seeds, frequently imperfect in shape, about 5½ inches long, and usually containing 3 to 6 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds medium in size and length, oval through cross section, rounded at ends, straight at eye, pale buff freely splashed with purplish red.

Comparison of late and early types.—Well known, but not one of the twenty most largely grown bush sorts. Formerly a great favorite in New Orleans and other southern markets. Most stocks of present day are badly mixed, the true fleshy-podded type having degenerated into a smaller, flatter podded bean, somewhat resembling a short imperfect Mohawk, but so tough as to be of little value for snaps and so unattractive as to be quite unsalable for green shell beans. The original fleshy-podded type is one of the longest and most showy of the bush varieties and excellent as snaps and green shell beans for either home or market, but not as reliable or as generally useful as Byer's Bush or Refugee. Very similar to Giant Forcer, differing in no important respect except in color of seed, while it differs from Longfellow principally in thicker, longer, more curved, shorter pod point, and in having seeds of different color and shape.

Synonyms of late type.—Breck's String and Shell, Sion House Forcing, Sutton's Dwarf Forcing.

Synonyms of early type.—Earliest Green Pod, Isbell's Earliest, Shipper's Favorite.

History.—Originated in Germany, and first listed in this country about 1876.

Illustrations.—Dry seeds of late type are shown on Plate I, 17; those of early type on Plate I, 18; snap pods of late type on Plate XI, 3; green shell pods of early type resemble in shape and size the short pods often found in Boston Favorite (Pl. XIV, 4), differing principally in being smaller and narrower; cross section of snap pod of late type is about as wide as Black Valentine (Pl. V, 14), but much larger in size; cross section of snap pod of early type is similar to Mohawk (Pl. V, 17).

BLACK TURTLE SOUP FIELD.

Listed by 4 seedsmen. Seeds tested: Dreer, 1905; Moore and Simon, 1904.

Description.—Plant very large, very spreading, with low-growing branches and runners of more or less creeping habit, very thick stemmed, and dark purple in color, late in season as snaps and field beans, of very long bearing period, very heavily productive. Leaf large, very dark green, varying to solid dark purple when old, very wide across leaflets, of rough surface. Flowers pink. Snap pods uniform in size, long, slender, curved, flat, dark green, tinged with dark bluish purple, very tough, very stringy, of much fiber, very poor in quality, very free from anthracnose. Point of pod medium in length and slightly curved. Green shell pods borne well below foliage, of coarse surface, varying in color from dark green to solid dark purple, depressed between seeds, about 5⅝ inches long and usually containing 7 to 9 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds very small, proportionally short, flattish oval through cross section, rounded or truncate at ends, straight or slightly incurved at eye, solid black in color.

Comparison.—Strictly a field variety and grown to a small extent in parts of California and New York for the foreign population and for seaboard use, being especially adapted for latter purpose because of its ability to withstand moisture better than most other sorts. Dry beans are quite different in flavor and quality from other varieties grown in this country and are in some demand for use in making certain kinds of soups. Pods decidedly too tough for snaps, too dull purple in color, too small seeded for green shell beans, and vines too late, coarse-growing, and spreading in habit for general cultivation. Pods similar in color to Blue Pod Butter and in shape more resembling the flat-podded type of Southern Prolific Pole than any bush variety, differing principally in shorter, narrower pods more curved at tip end.

Synonyms.—Black Spanish, Tampico, Turtle Soup.

History.—Cultivated in this country at least since 1845.

Illustrations.—Dry seeds are shown on Plate III, 17; snap pods on Plate XIII, 4; cross section of snap pods is similar to the flat-podded type of Southern Prolific (Pl. V, 2), differing principally in flatter shape.

BLACK VALENTINE.

Listed by 26 seedsmen. Seeds tested: Henderson, 1902; Keeney, 1904–1906; Tait, 1905; Thorburn, 1905.

Description.—Plant large-medium, fairly erect, with occasional drooping branches but without real runners, thick stemmed, green throughout, slightly purplish tinged at nodes of stem and flower branches, early intermediate in season, of moderate bearing period, moderately to heavily productive. Leaf medium in size, narrow across leaflets, medium green in color. Flowers pink. Snap pods very uniform, long, straight, almost round, dark green, tough, very stringy, of much fiber, of poor quality, fairly free from anthracnose. Point of pod long, slightly curved. Green shell pods generally borne well above foliage, never colored or splashed, full on outside between seeds, about 6 inches long and usually containing 6 seeds crowded in pod. Dry pods easy to thrash. Dry seed small-medium, proportionally long, roundish oval through cross section, rounded or truncate at ends, straight at eye, solid black in color.

Comparison.—Extensively grown by market gardeners in parts of the South but not one of the twelve most largely grown varieties of the United States. Being unsurpassed in hardiness, excellent for shipping, and one of the most uniformly productive, reliable, and handsome podded varieties, it is often the most profitable bean for market gardeners but because of being exceedingly tough and stringy it never gives satisfaction to the consumer; and here in America, where snaps are gathered so much later than is customary in Europe, the use of varieties such as these for snaps should be discouraged by seedsmen. Because of small black seed and narrow pods, it is also undesirable for green shell beans. Most like Longfellow, differing principally in color of seed and tougher, flatter, more perfectly formed pods. Similar to Red Valentine only in earliness and shape of leaves.

Synonym.—King of Earlies.

Confusing names.—Brown-Speckled Valentine, Cream Valentine, Giant Valentine, Red Valentine, White Valentine, all of which are very different from Black Valentine.

History.—Present type is claimed to have come from Europe and to have been first introduced in 1897 by Peter Henderson & Co., although it has not yet been proved that it is different from the Black Valentine listed about 1850 and afterwards dropped by American seedsmen.

Illustrations.—Dry seeds are shown on Plate III, 20; snap pods on Plate IX, 4, and a cross section of snap pod is shown on Plate V, 14.

BLUE POD BUTTER.

Listed by 3 seedsmen. Seeds tested: Burpee, 1901, 1902, 1905; Rogers, 1904.

Description.—Plant medium in size, erect, without runners or spreading branches, thick stemmed, more or less purplish tinged, especially at nodes and flower stems, early-intermediate in season, of short bearing period, lightly productive. Leaf medium in size, dark green, varying to solid dull bluish purple, very wide across leaflets, and of slightly rough surface. Flowers purple. Snap pods uniform in size, long, straight, flat, dark green, varyingly tinged with bluish purple, somewhat tough, stringy, of moderate fiber, of poor to medium quality, fairly free from anthracnose. Point of pod long and straight or slightly curved. Green shell pods borne both above and below foliage, generally solid bluish purple in color, somewhat depressed between seeds, about 6½ inches long and usually containing 6 or 7 seeds, somewhat separated in pod. Dry pods easy to thrash. Dry seeds of medium size, proportionally long, flattish oval through cross section, truncate or rounded at ends, generally slightly incurved at eye, solid light ecru in color with minute brownish area around eye.

Confusing name.—Blue Pod Field, which is of a very different type from Blue Pod Butter.

Comparison.—Little known or planted and grown only by amateurs, to whom it is interesting because of its peculiar blue color. Often thought to be of good quality, but really quite tough and full of fiber, and being also unproductive and too dull purple in color for market use it possesses no real practical value. Habit of vine about same as Davis Wax and pods similar in size and shape to Allan's Imperial Wax.

History.—Introduced in 1888 by W. Atlee Burpee & Co., who state that the variety came from Germany.

Illustrations.—Dry seeds are shown on Plate III, 15; snap pods on Plate XI, 4; leaf on Plate XXIV, 4; cross section of snap pod is similar to Detroit Wax (Pl. V, 16), differing principally in being larger.

BOSTON FAVORITE.

Listed by 30 seedsmen. Seeds tested: Gregory, 1905; Rogers, 1904.

Description.—Plant very large, very spreading with moderate number of runners, thick stemmed, green throughout, late-intermediate in season, long to moderate in bearing period, heavily productive. Leaf medium in size, medium green in color; flowers light pink, snap pods varying greatly in size and shape, generally long, occasionally short, slightly curved, flat, medium green, tough, stringy, of much fiber, of poor quality, very free from anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne mostly below foliage, abundantly splashed with brilliant red, much depressed on outside between seeds, about 6⅝ inches long and usually containing 5 or 6 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds large, very long, oval through cross section, invariably much rounded at ends, generally straight at eye, pale buff in color freely splashed with purplish red.

Comparison.—Largely planted in all parts of the United States, especially in New England, but not one of the twelve most largely grown bush sorts. Too tough and stringy for snaps and suitable only for green shell beans, though on account of the large proportion of undersized and imperfect pods it is much inferior for this use to Improved Goddard which it closely resembles, differing principally in more spreading habit, later season, and smaller, more unevenly shaped pods.

Synonyms.—Breck's Dwarf Horticultural, Goddard.

History.—Introduced in 1885 by the former Aaron Low Seed Company.

Illustrations.—Dry seeds are shown on Plate I, 26; green shell pods on Plate XIV, 4.

BOUNTIFUL.

Listed by 31 seedsmen. Seeds tested: Henderson, 1900–1902, 1905; Keeney, 1904–1906; Rogers, 1906.

Description.—Plant large-medium, fairly erect when young, but often drooping when fully grown, without runners or decided spreading branches, somewhat thick stemmed, green throughout, very early, of moderate bearing period, heavily to moderately productive. Leaf medium in size, very light green in color. Flowers light pink. Snap pods uniform in size, very long, generally curved only at tip end, flat, very light green in color, brittle, stringless, of inappreciable fiber, of good quality, somewhat subject to anthracnose. Point of pod extremely long, slender, and slightly curved or straight. Green shell pods borne both above and below foliage, never colored or splashed, slightly depressed between seeds, about 6¾ inches long and usually containing 6 to 8 seeds fairly close in pod. Dry pods generally easy to thrash. Dry seeds medium in size, slender, roundish oval through cross section, truncate or rounded at ends, straight or slightly incurved at eye, solid straw yellow in color, sometimes shading to coppery yellow, always with minute brownish area around eye.

Comparison.—Well known but not one of the twelve most largely grown bush varieties. Rapidly gaining in popularity and largely replacing Long Yellow Six Weeks, to which it is much superior in quality, besides earlier and having larger, straighter pods. Because of fine quality, it makes an excellent sort for home gardening, and being, with the possible exception of Grenell's Stringless Green Pod and Hodson Green Pod, the largest, most handsome, and even shaped of the flat, green-podded bush sorts, is excellent also for market use. Of same usefulness as Grenell's Stringless Green Pod and more like it in appearance than any other, differing in no important respects except in color of seed, in season, and in light green foliage.

Synonyms.—Breck's Boston Snap, Sutton's Plentiful (of English seed houses).

History.—Introduced in 1899 by Peter Henderson & Co., who state the variety came from D. G. Burlingame, of Genesee, N. Y.

Illustrations.—Snap pods and cross section of same are shown on Plate XIII, 1, and Plate V, 9, respectively; new and old seed are same color, shape, and size as Long Yellow Six Weeks (Pl. III, 18).

BROWN SWEDISH FIELD.

Listed by 2 seedsmen. Seeds tested: Isbell, 1905; Northrup, King, & Co.,,1905, 1906.

Description of round-podded type.—Plant large-medium in size, very erect, without runners or spreading branches, somewhat thick stemmed, green throughout, intermediate in season as snaps, early as field beans, long in bearing period, heavily productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods uniform in size, short-medium, straight, oval-flat through cross section, becoming round at green shell stage, light green, very tough, very stringy, of much fiber, poor in quality, free from anthracnose. Point of pod short and slightly curved. Green shell pods borne both above and below foliage, never colored or splashed, much depressed between seeds, about 5⅝ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds of medium size, proportionally short, roundish through cross section, truncate or rounded at ends, generally larger at one end than at other, rounded or flat at eye, solid brownish ocher in color except minute brownish area around eye.

Description of flat-podded type.—This type is larger in vine, a little later in season, often inclined to spread and send out runnerlike branches, and with pods and seeds much larger and flatter than above type.

Comparison of round and flat podded types.—This name is somewhat loosely applied to a number of brown-colored beans brought over to this country by Swedish immigrants and grown to a limited extent in the Northwest, where there is a demand for them among the foreign population. All are strictly dry shell varieties and too tough and stringy for good snaps, while as green shell beans they are too small seeded and too narrow podded to compare well with such green shell varieties as Improved Goddard. The round-podded type here described is most like China Red Eye, differing principally in color and shape of seed and in shorter, straighter, more oval pods, while the flat-podded type is most like Long Yellow Six Weeks, differing principally in color of seed, in smaller, narrower pods, and in larger, more spreading vines.

History.—Name appears to have been first recognized in seed catalogues about 1890 by Northrup, King & Co., although probably in use among produce trade some time before this date.

Illustrations of round-podded type.—Dry seeds are shown on Plate II, 3; snap pods are of similar shape to Round Yellow Six Weeks (Pl. XIII, 5), differing principally in being flatter and with seeds less crowded in pod.

Illustrations of flat-podded type.—Dry seeds are same in color as the round-podded type described above and similar in shape to Long Yellow Six Weeks (Pl. III, 18); snap pods are also similar in shape to Long Yellow Six Weeks (Pl. X, 1), differing principally in being narrower and shorter; cross sections of snap pods are similar to Mohawk (Pl. V, 17), differing principally in smaller and flatter shape.

BURPEE'S STRINGLESS GREEN POD.

Listed by 156 seedmen. Seeds tested: F. W. Bolgiano, 1903; Burpee, 1897, 1899–1902, 1906; Dibble, 1905; Ferry, 1902; Keeney, 1904–1906; Philipps, 1903; Rogers, 1904; Thorburn, 1901, 1902; Vaughan, 1903.

Description.—Plant large-medium, very erect when young, with a few shoots high above plant, but more or less drooping or spreading when fully grown; without runners, thick stemmed, green throughout, early, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods somewhat variable in size, long, generally more or less scimiter curved, sharply constricted between seeds as though drawn tight by a thread and separated into sections, round, dark green, extremely brittle, absolutely stringless, without fiber, of very good quality, somewhat subject to anthracnose. Point of pod medium in length, variable in shape, and either straight, curled, or twisted. Green shell pods borne mostly above foliage, never appreciably colored or splashed, very much depressed between seeds, about 5 inches long, and usually containing 6 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds medium in size and length, roundish through cross section, truncate or rounded at ends, straight at eye, sliver from pod occasionally attached to eye, solid burnt umber in color.

Comparison.—One of the five most largely planted green-podded varieties and popular because of general reliability, hardiness, productiveness, and tenderness; also unsurpassed for home use, adapted to all sections of the country, and though largely grown by market gardeners it is not always regular enough in shape to make a good appearance on the market, generally containing a larger percentage of imperfect pods than Red Valentine, Extra Early Refugee, and most others of its class. Some complaint also has been made within the last three years of its susceptibility to rust and anthracnose. Similar to Giant Stringless Green Pod, Henderson's Full Measure, and Knickerbocker, differing principally from the first-named sort in color of seed, a few days earlier season, shorter, thicker, and more curved pods, and shallower constrictions between seeds.

Synonyms.—Bell's Prolific Green Pod, McKenzie's Matchless Green Pod, Muzzy's Stringless Green Pod.

Confusing names.—Grenell's Stringless Green Pod, Giant Stringless Green Pod, Jones's Stringless Green Pod, all of which are very different from Burpee's Stringless Green Pod.

History.—Introduced in 1894 by W. Atlee Burpee & Co., and originated by N. B. Keeney & Son, of Leroy, N. Y.

Illustrations.—Snap pods and cross section are shown on Plate IX, 3, and Plate V, 13, respectively.

BYER'S BUSH.

Listed by 1 seedsman. Seeds tested: Childs, 1904, 1905; Thorburn, 1901, 1902.

Description.—Plant large, very erect when young, but somewhat drooping when fully developed, somewhat thick stemmed, green throughout, late, of long bearing period, heavily productive. Leaf medium in size, medium green in color, narrow across leaflets, of smooth and remarkably glossy surface, of very long petiole. Flowers pink. Snap pods uniform in size, long, very straight, round, medium green, of exceedingly smooth and glossy surface, extremely brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod very long and curved. Green shell pods borne both above and below foliage, sparingly purplish splashed, full on outside between seeds, about 5¾ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods generally easy to thrash. Dry seeds of medium size, slender, roundish through cross section, straight at eye, truncate or rounded at ends, chiefly solid violet-purple, but always more or less splashed and mottled with pale buff.

Comparison.—Little known or planted, but one of the most hardy and productive of snap beans, producing remarkably uniform, straight, handsome pods of beautiful glossy green color, far surpassing Red Valentine and Burpee's Stringless Green Pod in all these respects and being almost as productive as Refugee. Too late in season to be suitable for some uses and not quite free enough from fiber to make the best snaps. Market gardeners are advised to give the variety a trial, as it may in some cases prove more profitable with them than Refugee or other late sorts. More like Giant

Stringless Green Pod than any other, differing principally in more regularly shaped pods without deep depressions between seeds, without imperfectly defined ends, and in peculiar glossy green color.

History.—Apparently first listed in 1899 by John Lewis Childs, who writes that the seed was obtained from a Mr. Byer, of Tennessee.

Illustrations.—Snap pods are shown on Plate XII, 1; dry seeds are indistinguishable from Refugee (Pl. III, 5); cross sections of snap pods are similar to Burpee's Stringless Green Pod (Pl. V, 13).

CANADIAN WONDER.

Listed by 21 seedsmen. Seeds tested: Bridgeman, 1901; Cox, 1902; Fish, 1903; Kendel, 1901; Sharpe, 1904; Simmers, 1905; Thorburn, 1905; Tilton, 1901.

Description.—Plant very large, very erect, without runners or spreading branches, thick stemmed, green throughout, very late, long in bearing, very heavily productive. Leaf large, dark green, and of somewhat rough surface. Flowers light pink. Snap pods somewhat variable in size, very long, curved, flat, of very rough, coarse surface, dark green, very tough, very stringy, of much fiber, of poor quality, very free from anthracnose. Point of pod long and slightly curved. Green shell pods borne both above and below foliage, never appreciably colored or splashed, depressed on outside between seeds, about 8⅛ inches long and usually containing 6 to 8 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds large, long, very flattish oval through cross section, rounded or truncate at ends, straight or incurved at eye, solid plum-violet in color.

Comparison.—A well known but not extensively planted variety. Used both as a field and garden bean and, with the possible exception of Prolific Pickler, the longest podded, largest in growth of vine, and one of the most showy of the bush sorts for exhibition purposes. If picked very early the young pods are not only suitable as snaps but are as large in size as most sorts are when picked at the customary stage, but unless picked extremely early the pods will be fully as tough and as unsuitable for snaps as most field varieties. Excellent as green shell beans. More like Prolific Pickler than any other and next most like Red Kidney, differing principally in longer pod, later season, and larger vine.

Synonym.—Rose.

History.—Of uncertain origin and introduction. Listed by American seedsmen at least since 1884, when it was known as Rose Bean.

Illustrations.—Dry seeds are shown on Plate III, 27; snap pods on Plate X, 2; leaf on Plate XXIV, 6.

CHINA RED EYE.

Listed by 43 seedsmen. Seeds tested: Buckbee, 1897; Burpee, 1897, 1901; Keeney, 1904–1906; Thorburn, 1897, 1901.

Description.—Plant medium in size, very erect, without runners or spreading branches, somewhat slender stemmed, green throughout, early, of moderate bearing period, heavily to moderately productive. Leaf medium in size, light green in color. Flowers white. Snap pods very uniform in size, medium in length, straight, oval through cross section, light green in color, tough, very stringy, of much fiber, of poor quality fairly free from anthracnose. Point of pod small-medium and straight. Green shell pods borne both above and below foliage, never appreciably splashed or colored, depressed between seeds, about 5½ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size and length, roundish oval through cross section, rounded or truncate at ends, invariably straight at eye, white at sides and back and dark purplish red with pale buff marking around eye and ends.

Comparison.—A standard variety of the United States, but not one of the twelve most largely grown bush sorts. Formerly one of the principal garden varieties, but now largely replaced by better sorts. Decidedly too tough podded for good snaps, but on account of hardiness, reliability, and uniform, attractive pods it is still grown in some sections both for snaps and green shell beans. General usefulness and value about the same as Mohawk, Long Yellow Six Weeks, and Improved Yellow Eye, while in appearance of pod it is most like Round Yellow Six Weeks and Improved Yellow Eye, differing from the former principally in color and shape of seed, and longer, slenderer pods, which are quite stringy.

History.—One of the oldest of existing American sorts and cultivated in this country at least since 1800.

Illustrations.—Dry seeds are shown on Plate I, 15, and snap pods on Plate XI, 2.

CREAM VALENTINE.

Listed by 1 seedsman. Seeds tested: Henderson 1897, 1902, 1903, 1905.

Description.—Plant medium in size, very erect, without runners or spreading branches, somewhat slender stemmed, green throughout, early, of moderate bearing period, moderately productive. Leaf medium in size, medium green in color, and very narrow across leaflets. Flowers white. Snap pods uniform in size, of medium length, curved, round-broad through cross section, deeply creasebacked, medium green, extremely brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long and slightly curved. Green shell pods borne extremely high on plant and mostly above foliage, never splashed or colored, somewhat depressed on outside between seeds, about $4\frac{3}{4}$ inches long and usually containing 5 or 6 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds medium in size, slender, roundish through cross section, decidedly truncate at ends, straight at eye, irregular in shape, twisted, depressed or bulged out in places, solid medium ecru in color, with minute brownish yellow area around eye.

Comparison.—Little planted and unimportant. Differs from Red Valentine only in color of seed and less in being productive.

Confusing names.—Black Valentine, Brown Speckled Valentine, Giant Valentine, Red Valentine, White Valentine, all of which are very different from Cream Valentine.

History.—Introduced in 1897 by Peter Henderson & Co., who write that the variety originated in Genesee County, N. Y.

Illustrations.—Seeds are shown on Plate III, 14; snap pods are same as represented for Red Valentine (Pl. VII, 3); cross sections of snap pods are similar to Burpee's Stringless Green Pod (Pl. V, 13); differing principally in smaller size and broader shape.

CRIMSON BEAUTY.

Listed by 1 seedsman. Seeds tested: Ford, 1904, 1905.

Description.—Plant large, very erect, with long stem holding plant well up from ground, without runners or spreading branches, thick stemmed, green throughout, early-intermediate in season, long to moderate in bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods very uniform in size, long, very straight, flat, dark green, of much fiber, tough, very stringy, of poor quality, free from anthracnose. Point of pod medium in length and slightly curved. Green shell pods borne both above and below foliage, abundantly splashed with brilliant red, moderately depressed between seeds, about $6\frac{5}{8}$ inches long and usually containing 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds large, oval through cross section, generally well rounded at ends, generally straight at eye, pale buff in color, freely splashed with purplish red.

Comparison.—Little known and planted, and although a good green shell bean of similar value and usefulness to Improved Goddard it is inferior to that variety in size of pods and productiveness of plants, but because of much earlier season it may sometimes be more useful to market gardeners. The variety may be aptly called an "Extra Early Improved Goddard."

History.—Introduced in 1896 by Ford Seed Company, who write that the variety originated with E. D. Gibson, of Ashburnham, Mass., and that it is a cross between Dwarf Horticultural and a wax variety.

Illustrations.—Dry seeds are shown on Plate I, 28; green shell pods are similar to Improved Goddard (Pl. XIV, 3), differing principally in smaller size and averaging straighter or at least rarely curved back at stem end as is common in Improved Goddard; cross sections of snap pods are similar to Mohawk (Pl. V, 17), differing principally in larger size and flatter shape.

DAY'S LEAFLESS MEDIUM FIELD.

Listed by 7 seedsmen. Seeds tested: Johnson & Stokes, 1897.

Description.—Plant very large, very spreading, of many runners, slender stemmed, green throughout, late as snaps and field beans, long in bearing period, very heavily productive. Leaf small, medium green. Flowers white. Snap pods uniform in size, short, generally much curved back at stem end, very flat, changing to oval at green shell stage, very square at tip, very light green, very tough, very stringy, of much fiber, of very poor quality, very free from anthracnose. Point of pod short and straight. Green shell pods borne mostly below foliage, never splashed or colored, depressed between seeds on outside of pod, about 4⅜ inches long, and usually containing 6 or 7 seeds crowded in pod. Dry pods very easy to thrash. Dry seeds small, short, roundish oval through cross section, rounded or slightly truncate at ends, full or rounded at eye, solid white.

Comparison.—Strictly a field variety and wholly unsuited for use as snaps or green shell beans. Seeds intermediate in size between the large seeds known to produce trade as marrows and the small seeds known as pea beans. Generally known in the wholesale markets as mediums.

History.—First listed by seedsmen about 1898 and said to have originated with N. H. Day, of Honeoye Falls, N. Y.

Illustrations.—Dry seeds are shown on Plate IV, 6; green shell pods and cross sections resemble Navy Pea (Pl. XIII, 3, and Pl. V, 3, respectively), differing principally in being much more curved back at stem end, much flatter, and much larger.

EARLIEST MARKET.

Listed by 1 seedsman. Seeds tested: Griffith & Turner, 1905, 1906.

Description.—Plant large, very spreading, with moderate number of runners and drooping branches, somewhat thick stemmed, green throughout, early-intermediate in season, long in bearing, lightly to moderately productive. Leaf medium in size, dark green in color, of smooth and glossy surface. Flowers white. Snap pods variable in size, very long, slightly curved, very flat, medium green, tough, stringy, of much tough fiber, of poor to medium quality, free from anthracnose. Point of pod moderately long and curved. Green shell pods borne in large clusters well above foliage, never splashed or appreciably colored, much depressed between seeds, about 6¾ inches long and usually containing 6 or 7 seeds well separated in pod. Dry pods very easy to thrash. Dry seeds large-medium, proportionally short, flattish through cross section, generally well rounded at ends, straight or incurved at eye, generally regular in shape, but sometimes slightly bulged out in places, solid white.

Comparison.—Little known and planted. Most successful at the South. Profitable only for green shell beans, its pods being too flat, tough, and unattractive for use as snaps, and although its white seeds are very desirable for baking as well as for green shell, still it has never been found profitable as a field bean. Its superior merits, if any, are earliness and large size of seed, being similar in the former respect to Emperor William, but not nearly as large seeded nor producing such uniformly large, wide, handsome pods, besides having smaller, more spreading vine, smaller leaves, more runners, and more fruit spurs projecting high above plant. Next to Emperor William the variety is most like Tennessee Green Pod in appearance as well as in general usefulness and value.

Synonym.—Schwill's Quick Crop.

History.—Named in 1895 by Griffith & Turner, by whom it was formerly listed as First in Market. Probably same as Landreth's First in Market, introduced in 1883 by D. Landreth & Sons.

Illustrations.—Dry seeds are similar to Emperor William (Pl. IV, 19); green shell pods and cross section of snap pods resemble Dutch Case Knife Pole (Pl. XX, 1 and Pl. V, 28, respectively), differing principally in smaller and narrower shape.

EARLY AROOSTOOK FIELD.

Listed by 1 seedsman. Seeds tested: Jerrard, 1905, 1906.

Description.—Plant medium in size, erect, generally without runners or spreading branches, somewhat thick stemmed, early as snaps and field beans, of short bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers white. Snap pods very uniform in size, long-medium, curved at middle, flat, light green, tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod long and curved. Green shell pods borne both above and below foliage, never colored or splashed, depressed on outside between seeds, about 5¾ inches long, and usually containing 6 seeds fairly close in pods. Dry pods very easy to thrash. Dry seeds medium in size, roundish through cross section, slender, truncate or rounded at ends, generally slightly incurved at eye, solid white.

Comparison.—Little known or planted, but claimed to be valuable as an extra early, white-seeded field bean for northern latitudes like Aroostook County, Me., where the seasons are short for growing late varieties of field beans. Fairly productive, hardy, and possibly a good sort for southern latitudes, but too tough podded to be generally recommended for snaps and not equal as green shell beans to most garden varieties nor to large-seeded field sorts, such as White Kidney and Canadian Wonder. Most like Long Yellow Six Weeks, differing principally in color and smaller size of seed, earlier season, and smaller, narrower pods.

Confusing name.—Aroostook Bush Lima, a very different type of bean.

History.—Introduced about 1893 by George W. P. Jerrard Company.

Illustrations.—Dry seeds are shown on Plate IV, 10; snap pods are similar in shape to Long Yellow Six Weeks (Pl. X, 1), differing principally in smaller and narrower shape.

EMPEROR WILLIAM.

Listed by 6 seedsmen. Seeds tested: Burpee, 1901; Holmes, 1905; Mitchell, 1905, 1906; Rawson, 1902; Wernich, 1905.

Description.—Plant large, spreading, very low growing in habit, with many outstretched branches and occasional runners, green throughout, thick stemmed, intermediate in season, long in bearing, moderately productive. Leaf large, dark green, wide across leaflets, and of very rough surface. Flowers white. Snap pods somewhat variable in size, very long, slightly curved, very flat, light green, somewhat tough, stringy, of much fiber, poor to medium in quality, free from anthracnose. Point of pod moderately curved and long. Green shell pods borne in large, numerous clusters high above foliage, never appreciably colored or splashed except for black lines along sutures, much depressed on outside between seeds, about 6¾ inches long and usually containing 6 or 7 seeds much separated in pod. Dry pods very easy to thrash. Dry seeds large-medium, proportionally short, flattish through cross section, rounded at ends, straight or incurved at eye, generally regular in shape, but sometimes slightly bulging out in places, solid white except an occasional minute area of faint yellow around eye.

Comparison.—A favorite in Europe and advertised in this country for a long time, but never very popular. Its large white seeds are much liked by some gardeners for green shell beans, but it seems to have never become generally cultivated in America because spreading in habit and too tough, flat podded, and unattractive as snaps. White Kidney is far more profitable for dry beans, and is generally more satisfactory for green shell beans also. Most like Earliest Market in appearance and general usefulness, and next most like Tennessee Green Pod.

Synonyms.—Dwarf Case Knife, First in Market.

History.—First listed in this country about 1880 and described at that time as a new German variety.

Illustrations.—Dry seeds are shown on Plate IV, 19; green shell pods and cross section of snap pods are similar to Dutch Case Knife Pole (Pl. XX, 1, and Pl. V, 28, respectively), differing principally in smaller size.

EUREKA FIELD.

Listed by 1 seedsman. Seeds tested: Ford, 1904, 1905.

Description.—Plant medium in size, erect, with occasional spreading branches, but without real runners, thick stemmed, green throughout, late as snaps, early-intermediate as field beans, of moderate bearing period, lightly to moderately productive. Leaf medium in size, medium green in color. Flowers pinkish white. Snap pods uniform in size, short, slightly curved, very flat, light green, very tough, very stringy, of much fiber, of poor quality, fairly free from anthracnose. Point of pod very short and straight. Green shell pods borne both above and below foliage, never colored or splashed, much depressed between seeds, about 4⅝ inches long, and usually containing 5 or 6 seeds somewhat separated in pod. Dry pods very easy to thrash. Dry seeds small-medium, proportionately short, roundish through cross section, invariably well rounded at ends, decidedly larger at one end than at other, invariably rounded or full at eye, solid light greenish yellow in color.

Comparison.—This little-known and little-planted variety is a strictly green and dry shell bean of no real merit except for the interesting light yellow color of its dry seed. Its pods are decidedly too tough and stringy for good snaps, while for green or dry shell beans the variety is less productive than any other field sort and generally bears a larger percentage of imperfect pods. Most like Vineless Marrow, differing principally in color of seed and smaller pods with peculiar, short, well-defined pod point borne at center end of pod.

Synonyms.—Genter's Sulphur, California Cream Beans, Sulphur-Colored Bean.

History.—Introduced in 1893 by Ford Seed Company, who state the variety came from Mr. Goulding, of Portage County, Ohio, in whose family it has been for a long time, but the type has been doubtless known to many people at least since 1870.

Illustrations.—Dry seeds are shown on Plate I, 2; green shell pods are quite unlike any of following illustrations, but perhaps most resemble Red Kidney (Pl. XIV, 1), differing principally in color of seed, and shorter, better filled, narrower, and more regularly shaped pods with shorter, better defined pod point.

EVERBEARING.

Listed by 1 seedsman. Seeds tested: Burpee, 1900, 1901; Denison, 1903; Thorburn, 1901, 1902, 1905, 1906.

Description.—Plant large, very spreading, low growing, almost creeping in habit, of many runners, thick stemmed, green throughout, very late, very long in bearing, heavily productive. Leaf medium in size, very dark green in color. Flowers white. Snap pods varying greatly in size, long, curved, flat, medium green in color, exceedingly tough and stringy, of much hard fiber, of very poor quality, very free from anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods generally borne on numerous thick stems high above foliage, never splashed or appreciably colored, very much depressed on outside between seeds, often vacant seeded, about 5¾ inches long, and usually containing 5 or 6 seeds somewhat separated in pod. Dry pods very easy to thrash. Dry seeds medium in size and length, flattish oval through cross section, mostly well rounded at ends, incurved at eye, solid white.

Comparison.—This very unusual and little planted variety seems to be of but limited value for this country, but in France, where snap pods are gathered very young and undersized, it may be one of the best garden varieties. Its pods consist of almost as much fiber as any variety cultivated in America and are decidedly too tough as snaps for American conditions, while for green shell beans it is too narrow podded, too irregular in shape, and too unattractive for a profitable market variety. Its use, if any, seems to be for dry beans, as its seeds are pure white and its plants productive in right locations. The different stocks seem to vary greatly in size, shape, and season, and principally for this reason it has not been much grown, even for dry beans. Quite different from other American sorts, but perhaps as much like Earliest Market as any, the pods differing principally in being smaller, narrower, more curved, deeper depressed between seeds, and more uneven and ill shaped, while vines are coarser and more spreading, with fruit spurs more numerous and projecting more prominently above foliage.

History.—Introduced in 1899 by W. Atlee Burpee & Co., who describe it as of French origin.

Illustrations.—Dry seeds are shown on Plate IV, 9; snap pods and cross section of same are similar to Lightning (Pl. XIII, 2, and Pl. V, 20, respectively), differing principally in color, and longer, narrower pods, approaching more the shape of the flat-podded type of Southern Prolific (Pl. XVI, 1).

EXTRA EARLY REFUGEE.

Listed by 113 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1899–1901, 1903; Keeney, 1904, 1906; Rawson, 1901; Rice, 1906; Rogers, 1904, 1905; Thorburn, 1901, 1902; Vaughan, 1901.

Description.—Plant medium in size, very erect, without runners or spreading branches, very compact, of well-rounded form, somewhat thick stemmed, green throughout, early, of moderate bearing period, heavily to moderately productive. Leaf medium in size, light green in color, narrow across leaflets. Flowers pink. Snap pods uniform in size, of medium length, curved, round through cross section, deeply creasebacked, light green, brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long and curved. Green shell pods borne both above and below foliage, sparingly splashed with light purple, quite full on outside between seeds, about 5 inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods moderately hard to thrash. Dry seeds of medium size, slender, roundish through cross section, truncate or rounded at ends, straight at eye, bluish black splashed and mottled with pale buff, sometimes almost solid bluish black.

Comparison.—One of the twelve most largely grown bush sorts. A good shipper and of fine appearance on the market and, though not as tender as Burpee's Stringless Green Pod or as fleshy as Red Valentine, it nevertheless makes good snaps for home use, but it is too small podded for satisfactory green shell beans. Similar to Late Refugee only in color of seed and shape of pod, the season being much earlier and vine much more bushy than that variety. Of usefulness similar to Red Valentine and more like it than any other, differing principally in more compact and lower growing vines, and somewhat longer, more slender pods, which become slightly splashed at green shell stage.

Synonyms.—Best of All, Early Market Bush, Bolgiano's Early May Queen, Early May Queen, Excelsior Refugee, May Queen, Page's Extra Early.

Confusing names.—Golden Refugee, Refugee, Late Refugee, Silver Refugee, McKinley Refugee, Galega Refugee, all of which are very different types from Extra Early Refugee.

History.—Introduced in 1888 by J. M. Thorburn & Co.

Illustrations.—Seeds are shown on Plate III, 6; snap pods on Plate VII, 2; cross sections of snap pods are similar to Refugee (Pl. V, 12), differing principally in thicker shape.

FRENCH FLAGEOLET.

Listed by 1 seedsman. Seeds tested: Vincent, 1905, 1906.

Description.—Plant large, very erect, without runners or spreading branches, thick stemmed, green throughout, intermediate-early in season, long in bearing, heavily productive. Leaf large, medium green, of somewhat rough surface. Flowers white. Snap pods uniform in size, very long, moderately curved, oval-flat through cross section, very light green, very tough, very stringy, of much fiber, of very poor quality, free from anthracnose. Point of pod extremely long and curved. Green shell pods borne equally above and below foliage, never splashed or colored, moderately depressed between seeds, about 6 inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds large, long, oval through cross section, generally well rounded at ends, generally much incurved at eye, solid white.

Comparison.—Little known and planted and real value not yet fully established, but, being the longest podded of the early sorts and the only white-seeded, large-podded variety which is early in season, it might sometimes seem to be a useful variety. Possibly valuable as a field bean for northern latitudes where seasons are short for maturing late varieties or for green shell beans or for snap pods to be used in shipping. Unless picked earlier than is customary in America its pods are not satisfactory as snaps for home use and are fully as tough as White Kidney and other field sorts. Most like Canadian Wonder, differing principally in color and shape of seed, earlier season, smaller vine, and shorter, narrower pods.

History.—A very old name of obscure origin.

Illustrations.—Dry seeds are shown on Plate IV, 21; snap pods are similar to Canadian Wonder (Pl. X, 2), differing principally in being considerably narrower and shorter.

FRENCH KIDNEY FIELD.

Listed by 2 seedsmen. Seeds tested: Johnson & Musser, 1905.

Description.—Plant very large, very erect, without runners or spreading branches, very thick stemmed, green throughout, very late as snaps, late as field beans, long in bearing, heavily productive. Leaf large, medium green, and of rough surface.

Flowers light pink. Snap pods somewhat variable in size, long, very characteristically curved back at middle of pod, oval-flat through cross section, dark green, of very rough and coarse surface, very tough, very stringy, of much hard fiber, of very poor quality, free from anthracnose. Point of pod very long, curved, gradually tapering. Green shell pods borne equally above and below foliage, sometimes sparingly splashed with purplish red, moderately depressed between seeds, about 6 inches long, and usually containing 5 or 6 seeds somewhat separated in pod. Dry pods very easy to thrash. Dry seeds large, slender, oval through cross section, generally well rounded at ends, very straight at eye, light garnet brown, splashed with crimson-violet.

Comparison.—Little known and planted in this country. Of similar usefulness to French Mohawk and Red Kidney, the pods differing from latter principally in narrower shape, backward curving at middle, and splashed color of both seed and pods.

History.—An old name of obscure origin.

Illustrations.—Dry seeds are shown on Plate I, 24; green shell pods are as much like those of Red Kidney (Pl. XIV, 1) as any of the illustrations here shown, differing principally in being narrower and curved back at middle of pod.

FRENCH MOHAWK.

Listed by 1 seedsman. Seeds tested: Johnson & Musser, 1906.

Description.—Plant very large, very erect, without runners or spreading branches, thick stemmed, green throughout, very late, long in bearing, very heavily productive. Leaf very large, medium green, and of rough surface. Flowers pink. Snap pods uniform in size, very long, slightly curved, oval through cross section, medium green, very tough, very stringy, of much fiber, very poor in quality, free from anthracnose. Point of pod long and curved. Green shell pods borne equally above and below foliage, splashed with reddish purple, moderately depressed between seeds, about 7⅞ inches long and usually containing 7 or 8 seeds somewhat separated in pod. Dry pods very easy to thrash. Dry seeds large-medium, slender, oval through cross section, truncate or rounded at ends, straight at eye, deep bluish black in color, sparingly splashed with pale buff.

Comparison.—Little known and cultivated in this country. On account of remarkably straight pods and, perhaps, because of other qualities which have not yet been brought out in our limited trials, this variety may, in some cases, prove superior to Canadian Wonder and other varieties of this class. Suitable for both field and garden use and of satisfactory quality as snaps if picked younger than is customary with other varieties. Similar to Mohawk and Canadian Wonder, differing from former principally in larger, coarser vines, later season, and longer pods, and from latter in straighter, narrower pods and splashed color of seed.

History.—Named in 1904 by Johnson & Musser, but previously listed by them as Rapp's Favorite, under which name it was introduced in 1900.

Illustrations.—Dry seeds are shown on Plate III, 8; snap pods are similar to Mohawk (Pl. XII, 4), differing principally in much larger size and longer pod point; also similar to Canadian Wonder (Pl. X, 2), differing principally in being straighter, narrower, and shorter.

GALEGA.

No longer listed by American seedsmen. Seeds tested: Thorburn, 1903, 1905.

Description.—Plant very large, very spreading, with many runners and drooping branches, slender stemmed, green throughout, very late, very long in bearing, very heavily productive. Leaf small, light grayish green, very narrow across leaflets, very smooth, and of very long petiole. Flowers pink. Snap pods uniform in size, very long, straight, oval-flat through cross section, dark green, somewhat tough, stringy, of moderate fiber, of poor to fair quality, quite free from anthracnose. Point of pod straight and medium in size. Green shell pods borne mostly below foliage, splashed with reddish purple, quite full on outside between seeds, about 6¾ inches long, and usually containing 7 seeds crowded in pod. Dry pods very easy to thrash. Dry seeds of medium size, somewhat slender, oval through cross section, generally rounded at ends, straight at eye, bluish black in color, fairly splashed with pale buff.

Comparison.—This variety, which has never been popular in America, has now almost gone out of cultivation. On account of extremely late season it is of very limited value, although unsurpassed among strictly garden varieties for productiveness, large growth of vine, and uniformity in size and shape of its very large, straight, handsome pods. Similar in general usefulness and value to Hodson Green Pod and more like it in appearance than any other, differing principally in larger, slenderer stemmed plants, with straighter, shorter, thicker, proportionally narrower pods. Differs from Refugee principally in color of seed, larger, later vine, and longer, flatter, tougher pods.

Synonym.—Galega Refugee.

History.—Listed by American seedsmen under this name at least since 1880. Probably a very old type.

Illustrations.—Dry seeds are shown on Plate III, 7; leaf on Plate XXIV, 1; snap pods are more like those of Mohawk (Pl. XII, 4) than any of illustrations, differing in narrower but considerably longer shape, besides being splashed at green shell stage.

GARDEN PRIDE.

No longer listed by American seedsmen. Seeds tested: Jones, 1903–1905; Keeney, 1906; Vaughan, 1904, 1905.

Description.—Plant small-medium, slightly spreading, without runners or decided spreading branches, somewhat slender stemmed, green throughout, early-intermediate in season, of moderate bearing period, moderately productive. Leaf medium in size, light green in color. Flowers white. Snap pods uniform in size, medium in length, scimiter curved, oval-round through cross section, light green in color, brittle, stringless, without fiber, of good quality, somewhat subject to anthracnose. Point of pod long, imperfectly defined, generally curved. Green shell pods borne equally above and below foliage, never splashed or colored, slightly depressed on outside between seeds, about 5 inches long, and usually containing 6 seeds crowded in pod. Dry pods hard to thrash. Dry seeds of medium size, somewhat slender, roundish through cross section, rounded or truncate at ends, almost straight at eye, sliver from pod occasionally attached to eye, solid white except sometimes minute area of faint yellow around eye.

Comparison.—Little known and planted. Of usefulness similar to Red Valentine and Burpee's Stringless Green Pod, and although not quite so productive it has some value over others of its class because of pure white seed. Vine similar to Bountiful, differing principally in less spreading habit, while pods are almost same in appearance as Jones's Green Pod but easily distinguished from it by the very light yellowish green of its green shell pods.

History.—Introduced in 1903 by the originator, A. N. Jones, of Leroy, N. Y.

Illustrations.—Dry seeds are shown on Plate IV, 11; snap pods resemble Extra Early Refugee (Pl. VII, 2), differing principally in stringlessness, larger size, flatter shape, lighter green color, and peculiar scimiter curvature of pod, which is decidedly curved inward at extreme tip end and decidedly curved backward at extreme stem end.

GIANT FORCER.

Listed by 1 seedsman. Seeds tested: Dreer, 1906.

Description.—Plant very large, spreading extensively over ground with heavy, thick-stemmed, drooping branches, but without real runners, wholly green, very late, long in bearing, heavily to moderately productive. Leaf very large, dark green, wide across leaflets, and of very rough surface. Flowers light pink. Snap pods somewhat variable in size, very long, straight, oval-round through cross section, medium green in color, brittle, stringy, of small fiber, of good quality, fairly free from anthracnose. Point of pod short and slightly curved or straight. Green shell pods borne mostly below foliage, sparingly splashed with faint red, full on outside between seeds, about 7⅛ inches long, and usually containing 6 to 8 seeds crowded in pod. Dry pods sometimes hard to thrash. Dry seeds small-medium, short, generally larger at one end than at other, roundish oval through cross section, well rounded at ends, straight or rounded at eye, pale buff in color, sparingly splashed with medium fawn.

Comparison.—New and as yet planted only in an experimental way. Recommended by introducers as excellent for forcing, but as Department trials of this variety have so far been incomplete it is not possible at this time to state its real value in this and other respects. Excepting for smaller size and different color of seed it seems to be similar in appearance and general usefulness to the late type of Best of All, but unlike that variety the stocks are pure and even.

History.—Introduced in 1906 by Henry A. Dreer.

Illustrations.—Snap pods are similar to Best of All (Pl. XI, 3).

GIANT STRINGLESS GREEN POD.

Listed by 78 seedsmen. Seeds tested: Burpee, 1901, 1903; Keeney, 1903, 1904, 1906; Philipps, 1903; Rice, 1903; Thorburn, 1901, 1902.

Description.—Plant large-medium, very erect when young, with a few shoots high above plant, but upon approaching maturity becoming somewhat weighed down and spreading with many outstretched branches, without real runners, somewhat thick stemmed, green throughout, early-intermediate in season, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods somewhat variable in size, very long, generally more or less scimiter curved, sharply constricted between seeds as if drawn tight by a thread and separated into sections, round, deeply creasebacked, dark green, extremely brittle, absolutely stringless, totally without fiber, of very good quality, somewhat subject to anthracnose. Point of pod medium in length, variable in shape, either straight, curled, or twisted. Green shell pods borne mostly above foliage, never appreciably colored or splashed, very much depressed between seeds, about 6 inches long, and usually containing 6 or 7 seeds tightly crowded in pod. Dry pods hard to thrash. Dry seeds of medium size, slender, roundish through cross section, truncate or rounded at ends, straight at eye, solid brownish ocher in color except minute brown area around eye.

Comparison.—One of the most largely grown garden varieties. Except for difference in color of seed, it is sometimes hardly distinguishable from Burpee's Stringless Green Pod and possesses about the same merits and has the same fault of uneven pods described for that variety. For home use there is little to choose between the two varieties but for market use there exists considerable difference of opinion as to which variety is the most profitable. A few days later in season, and pods a little longer, proportionally slenderer, straighter, and more deeply constricted between seeds than Burpee's Stringless Green Pod. Also similar to Knickerbocker and Henderson's Full Measure.

Synonyms.—Bell's Giant Stringless Green Pod, English Stringless, Giant Valentine, Mammoth Stringless Green Pod, Norwood Giant Stringless.

Confusing names.—Jones's Green Pod, Grenell's Stringless Green Pod, both very different types.

History.—Introduced in 1898 by Johnson & Stokes as Giant Stringless Green Pod Valentine.

Illustrations.—Dry seeds are shown on Plate III, 24; snap pods and cross section of same are similar to Burpee's Stringless Green Pod (Pl. IX, 3, and Pl. V, 13, respectively).

GOLDEN REFUGEE.

Listed by 4 seedsmen. Seeds tested: Thorburn, 1902, 1905.

Description.—Plant very large, very spreading, with many runners and drooping branches lying loosely over the ground, thick stemmed, green throughout, very late, very long in bearing, very heavily productive. Leaf small, very light grayish green, very narrow across leaflets, very smooth, and of very long petiole. Flowers pink. Snap pods very uniform in size, medium to long, slightly curved, round through cross section, silvery green in color, brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long and curved. Green shell pods borne well below foliage, occasionally splashed with reddish purple, quite full on outside between seeds, about 5⅜ inches long, and usually containing 6 seeds crowded in pod. Dry pods moderately hard to thrash. Dry seeds small-medium, proportionally slender, roundish through cross section, rounded or truncate at ends, generally flat at eye, chocolate brown freely splashed with maize yellow.

Comparison.—Department trials have not been extensive enough to determine real value of this little known and planted variety, but it seems to be of usefulness similar to Refugee and perhaps of special value on account of the unusual color of its pods, which are almost as silvery white as those of Crystal Wax. Differs from Refugee principally in being a few days earlier, of lighter colored foliage, smaller vine, and shorter pods; also thought by some to be less productive and hardy.

Synonyms.—McKinley Refugee, Silver Refugee.

Confusing names.—Refugee, Late Refugee, Galega Refugee, Extra Early Refugee, all of which are very different from Golden Refugee.

History.—Apparently first introduced in 1884 by J. M. Thorburn & Co.

Illustrations.—Leaf is shown on Plate XXIV, 3; snap pods and cross section of same are similar to round-podded type of Refugee (Pl. XII, 3, and Pl. V, 12, respectively).

GRENELL'S STRINGLESS GREEN POD.

Listed by 2 seedsmen. Seeds tested: Grennell, 1903–1905.

Description.—Plant large-medium in size, erect when young, slightly spreading when old, without runners or decided spreading branches, somewhat thick stemmed, green throughout, early, of short bearing period, moderately to heavily productive. Leaf medium in size, light green in color. Flowers white. Snap pods uniform in size, very long, curved at tip end only, very flat, light green, brittle, stringless, of inappreciable fiber, of good quality, somewhat subject to anthracnose. Point of pod extremely long, slender, slightly curved. Green shell pods borne both above and below foliage, never colored or splashed, slightly depressed on outside between seeds, about 6⅞ inches long, and usually containing 6 to 8 seeds fairly close in pod. Dry pods generally easy to thrash. Dry seeds large-medium, medium in length, generally well rounded at ends, oval through cross section, generally straight at eye, solid white except small area of medium hazel around eye.

Comparison.—Little known or planted. A good all-round, green-podded sort of similar usefulness to Bountiful and more like it in appearance than any other, differing in no important respects except in color of seed, a few days later season, longer, flatter, more curved pods, and more erect vines.

Confusing names.—Burpee's Stringless Green Pod, Giant Stringless Green Pod, Jones's Stringless Green Pod, all of which are very different from Grenell's Stringless Green Pod.

History.—Introduced in 1905 by J. Bolgiano & Son and originated by W. H. Grenell, of Pierrepont Manor, N. Y.

Illustrations.—Dry seeds are shown on Plate III, 4; snap pods and cross section of same are similar to Bountiful (Pl. XIII, 1, and Pl. V, 9, respectively).

HENDERSON'S FULL MEASURE.

Listed by 1 seedsman. Seeds tested: Henderson, 1906.

Description.—Plant large-medium, very erect when young, with few shoots high above plant, but upon approaching full development becoming weighed down and spreading with many outstretched branches, without real runners, somewhat thick stemmed, green throughout, early-intermediate in season, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods somewhat variable in size, very long, generally more or less scimiter curved, sharply constricted between seeds as if drawn tight by a thread and separated into sections, round, deeply creasebacked, dark green, extremely brittle, absolutely stringless, totally without fiber, of very good quality. Point of pod medium in length, variable in shape, either straight, curled, or twisted. Green shell pods borne mostly above foliage, never appreciably colored or splashed, very much depressed between seeds, about 6 inches long, and usually containing 6 to 8 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds of medium size, very slender, straight, roundish through cross section, rounded or truncate at ends, uniformly straight at eye, chocolate brown freely splashed and mottled with maize yellow.

Comparison.—This new and as yet little known and cultivated variety has not yet been tested long enough to make an accurate comparison with other varieties, but it is evidently very similar in appearance to Giant Stringless Green Pod and of similar usefulness and value.

History.—Introduced in 1906 by Peter Henderson & Co., and described by them as a cross between Yosemite Wax and Late Refugee.

Illustrations.—Dry seeds are about same shape and size as Longfellow (Pl. I, 20); snap pods and cross section of same are similar to Burpee's Stringless Green Pod (Pl. IX, 3, and Pl. V, 13, respectively), differing principally in larger size and straighter shape.

HODSON GREEN POD.

Listed by 1 seedsman. Seeds tested: Clark, 1905; Keeney, 1906.

Description.—Plant very large, without decided runners, but with many outstretched branches lying loosely over ground, thick stemmed, wholly green, very late, long in bearing, very heavily productive. Leaf medium in size, of very narrow and pointed leaflets, medium green in color. Flowers light pink. Snap pods uniform in size, very long, almost straight, flat, medium green, very tough, very stringy, of much fiber, poor to medium in quality, quite free from anthracnose. Point of pod long and straight or slightly curved. Green shell pods borne mostly below foliage, never appreciably splashed or tinged, about 7½ inches long, and usually containing 6 to 8 seeds crowded in pod. Dry pods very easy to thrash. Dry seeds large-medium, slender, roundish oval through cross section, generally well rounded at ends, straight or slightly incurved at eye, purplish red freely splashed with pale buff.

Comparison.—New and as yet little known and planted. Differs from Hodson Wax only in color of pod and, like that variety, is too tough for home use, but, its pods being extremely large, very handsome, and excellent shippers and the plant usually the most productive, strongest, and rankest grower of all the green-podded bush sorts, it makes a good market gardener's sort for late crops. More like Galega than any other of the green-podded varieties, differing principally in earlier season and larger, flatter pods.

History.—Introduced in 1906 by O. W. Clark & Son, who state the variety was found in a field of Hodson Wax.

Illustrations.—Dry seeds are same as Hodson Wax (Pl. I, 19); snap pods and cross section of same are similar in shape to Currie's Rustproof Wax (Pl. VIII, 1, and Pl. V, 10, respectively), differing principally in being longer and much flatter.

IMPROVED GODDARD.

Listed by 7 seedsmen. Seeds tested: Ferry, 1898, 1900–1902, 1904, 1905.

Description.—Plant large, very erect, with long stems holding plant well up from ground, without runners or spreading branches, thick stemmed, green throughout, late-intermediate in season, long to moderate in bearing period, heavily productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods very uniform in size, very long, straight, flat, dark green, tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne both above and below foliage, abundantly splashed with brilliant red, moderately depressed between seeds, about 7 inches long, and usually containing 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds large, very long, oval through cross section, invariably much rounded at ends, generally straight at eye, pale buff in color, freely splashed with purplish red.

Comparison.—One of the lesser grown varieties of the country and much less planted than the old Goddard or Boston Favorite, although much superior to it in earliness and uniformly large, straight, handsome pods. Decidedly the best all-round strictly green shell bean and the best, largest, and most handsome show variety for green shell beans, as well as the most productive of the Horticultural class, but unsuitable for snaps or for field culture. Most like Crimson Beauty, differing principally in productiveness, later season, and larger pods.

History.—Introduced in 1897 by D. M. Ferry & Co., and described as a selection from Boston Favorite or Goddard.

Illustrations.—Green shell pods are shown on Plate XIV, 3; seeds are about same as Boston Favorite (Pl. I, 26); cross sections of snap pods are similar to Mohawk (Pl. V, 17), differing principally in considerably flatter shape and larger size.

IMPROVED YELLOW EYE.

Listed by 11 seedsmen. Seeds tested: Schlegel & Fottler, 1905.

Description.—Plant large, very spreading, with many runners lying loosely over ground, thick stemmed, green throughout, intermediate-early, long bearing, moderately productive. Leaf medium in size, medium green in color. Flowers pinkish white. Snap pods are somewhat variable in size, long-medium, slightly curved, very flat, becoming roundish at green shell stage, light green, very tough and stringy, of much fiber, of poor quality, free from anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne mostly below foliage, never splashed or colored, much depressed between seeds, about 5⅝ inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds of medium size, proportionally short, roundish through cross section, truncate or rounded at ends, often larger at one end than at the other, straight or rounded at eye, solid white, except brownish ochre around eye covering about one-fourth of area of bean.

Comparison.—One of the minor field varieties of the country and formerly more largely grown than at present. Of about same usefulness as White Marrow and next to Yellow Eye more like it in appearance than any other, differing principally in color and smaller size of seed and shorter, narrower, better filled pods. Like White Marrow, its pods are too tough in texture and too irregular in shape to make good snaps, but are satisfactory for green shell beans.

History.—Listed by seedsmen in this country at least since 1880.

Illustrations.—Dry seeds are shown on Plate II, 12; green shell pods are similar to Red Cranberry Pole (Pl. XVIII, 3), differing principally in smaller size and flatter shape.

KNICKERBOCKER.

Listed by 1 seedsman. Seeds tested: Henderson, 1902, 1905, 1906.

Description.—Plant large-medium, very erect when young with few shoots high above plant, but, upon approaching maturity, becoming somewhat weighed down and spreading with many outstretched branches, without real runners, somewhat thick stemmed, green throughout, early-intermediate in season, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods somewhat variable in size, very long, generally more or less scimiter curved, sharply constricted between seeds as if drawn tight by a thread and separated into sections, round, deeply creasebacked, dark green, extremely brittle, absolutely stringless, totally without fiber, of very good quality, somewhat subject to anthracnose. Point of pod medium in length, variable in shape, straight, curled, or twisted. Green shell pods borne mostly above foliage, never appreciably colored or splashed, very much depressed between seeds, about 6 inches long, and usually containing 6 to 8 seeds tightly crowded in pod. Dry pods hard to thrash. Dry seeds large-medium, slender, roundish through cross section, truncate or rounded at ends, straight or slightly incurved at eye, solid purplish brown in color.

Comparison.—This little known and little planted variety has not yet been tested sufficiently by this Office to determine its real value but it appears to be of about same usefulness as Giant Stringless Green Pod, the young pods being hardly distinguishable from those of that variety and the sort differing in no important respect except in color of seed and freedom from flattish pods.

History.—Introduced in 1902 by Peter Henderson & Co., who write that the variety came from Genesee County, N. Y.

Illustrations.—Dry seeds are shown on Plate I, 23; snap pods and cross section of same are similar to Burpee's Stringless Green Pod (Pl. IX, 3, and Pl. V, 13, respectively), differing principally in being longer and straighter.

LATE REFUGEE.

See Refugee.

LIGHTNING.

Listed by 1 seedsman. Seeds tested: Thorburn, 1902, 1905, 1906.

Description.—Plant medium in size, very spreading with many long creeping branches but with only occasional runners, very thick stemmed, more or less purplish tinged at stems and branches, especially at nodes and on fruit spurs, very early, of short bearing period, lightly productive. Leaf medium in size, very dark green, often tinged with brownish purple, very wide across leaflets and of rough surface. Flowers white with pink blotch at upper end of standard and wings extending half way down petals in distinct streaks. Snap pods variable in size, short, variously curved and bent, very flat, medium green in color, very tough, very stringy, of much fiber, of very poor quality, quite free from anthracnose. Point of pod medium in length, gradually tapering, moderately curved. Green shell pods borne high above foliage on numerous, thick flower stalks and well toward center of plant, dark green, often splashed and tinged with brownish purple, very much depressed between seeds, often vacant seeded, about 5 inches long, and usually containing 5 or 6 seeds well separated in pod. Dry pods very easy to thrash. Dry seeds large-medium in size, medium in length, flattish oval through cross section, rounded or truncate at ends, incurved at eye, somewhat irregular in shape, often bulged out on one side, creamy white in color variously striped with greenish gray to deep putty, largely white in some seeds, largely greenish gray in others.

Comparison.—Little known and planted, and of very little value. Apparently suitable only for extra-early green shell beans and, though the earliest of all for this use, it rarely proves as profitable even for this purpose as Ruby Horticultural, Warwick, or Crimson Beauty. Its plants are unproductive and unreliable, its green shell pods small, twisted, ill shaped, and unattractive, while snap pods are decidedly too tough in texture even for market. About as flat-podded as Emperor William, more spreading than Navy Pea, and less productive than most garden sorts.

Synonym.—Feejee (of about 1875).

History.—Apparently first named in 1901 by J. M. Thorburn & Co.

Illustrations.—Dry seeds are shown on Plate III, 12, and snap pods and cross section of same on Plate XIII, 2, and Plate V, 20, respectively.

LONGFELLOW.

Listed by 52 seedsmen. Seeds tested: Denison, 1903, 1904; Henderson, 1897, 1900, 1902, 1905; Keeney, 1904, 1906; Rogers, 1906; Thorburn, 1901, 1902.

Description.—Plant large-medium, generally more or less spreading and weighed down with heavy outstretched branches, but always without real runners, thick stemmed, green throughout, intermediate in season, of moderate bearing period, generally moderately productive. Leaf large, dark green, wide across leaflets, of somewhat rough surface. Flowers pinkish white. Snap pods variable in size, very long, very straight, round, dark green, brittle, stringy, of slight fiber, of good quality, especially subject to anthracnose. Point of pod extremely long, imperfectly defined, gradually tapering, variously shaped, either straight, twisted, or much curved. Green shell pods borne equally above and below foliage, never appreciably colored or splashed, full on outside between seeds, about 6⅝ inches long, and usually containing 6 seeds very crowded in pod. Dry pods generally easy to thrash. Dry seeds of medium size, very slender and straight, roundish through cross section, rounded or truncate at ends, uniformly very straight at eye, dingy brownish red freely splashed with pale buff.

Comparison.—One of the lesser grown varieties of the country. Often the best for market gardeners to grow as snaps but too narrow podded for satisfactory green shell beans and somewhat too tough and stringy for home use. Much liked in parts of the South and especially attractive because of long, straight pods, no other round-podded variety being straighter than this one. Although productive in favorable localities, this variety, under unfavorable conditions, succumbs more quickly to anthracnose than any other, and unless a good growth is obtained there is likely to be a considerable number of undersized and imperfectly shaped pods which are abruptly bent, deeply depressed between seeds, and incompletely filled; but whether the growth be good or poor the pods always show coarse, tapering ends, no other variety having such a long and imperfectly defined pod point. Most like Black Valentine in appearance and general usefulness, differing principally in later, darker green, coarser growing plants, rounder, darker green pods and seed of different color.

Synonyms.—Emerald Beauty, Emperor of Russia, French Market, French Lead Pencil, French Stringless, Perfectly Straight Round Pod, Steckler's Perfectly Straight Round Pod, Sutton's Perfection.

History.—Introduced in 1895 by Peter Henderson & Co., and described as of European origin.

Illustrations.—Dry seeds are shown on Plate I, 20; snap pods on Plate IX, 1; cross sections of snap pods are about as broad as the round-podded type of Refugee (Pl. V, 12).

LONG YELLOW SIX WEEKS.

Listed by 160 seedsmen. Seeds tested: Buist, 1901; Denison, 1903; Ferry, 1906; Henderson, 1901; Keeney, 1905, 1906; May, 1897; Rogers, 1906; Schlegel & Fottler, 1901; Thorburn, 1897, 1901–1903; Vaughan, 1901.

Description.—Plant medium in size, very erect, without runners or spreading branches, somewhat thick stemmed, green throughout, early, of moderate bearing period, heavily to moderately productive. Leaf medium in size, light green in color. Flowers light pink. Snap pods very uniform in size, long, generally curved at middle, flat, light green, tough, very stringy, of moderate to strong fiber, poor to fair in quality, fairly free from anthracnose. Point of pod long and either straight or slightly curved. Green shell pods borne both above and below foliage, never colored or splashed, slightly depressed between seeds, about 6 inches long, and usually containing 6 seeds, fairly close in pod. Dry pods very easy to thrash. Dry seeds of medium size, slender, roundish oval through cross section, truncate or rounded at ends, straight or slightly incurved at eye, solid straw yellow in color, sometimes shading to coppery yellow, always with minute brownish area around eye.

Comparison.—This variety, which is extensively grown in all parts of the country, has been a standard sort for over seventy years and is to-day one of the five most largely grown green-podded garden varieties. Being an unusually fine shipper, hardy, reliable, fairly productive, handsome, and of even shape, it is one of the best for market gardening, but its pods are too tough to be of good quality as snaps for home use, Bountiful being decidedly preferable for private gardens. Pods more like those of Bountiful than any other, differing principally in being smaller, tougher, curved at middle instead of tip end, while vines are darker green, smaller, and less spreading in habit.

Synonym.—Pride of Newton.

History.—One of the oldest of the present-day sorts. Listed by J. M. Thorburn & Co., at least since 1822.

Illustrations.—Seeds are shown on Plate III, 18; snap pods on Plate X, 1; cross sections of snap pods are similar to Bountiful (Pl. V, 9).

LOW'S CHAMPION.

Listed by 31 seedsmen. Seeds tested: Farquhar, 1905; Rawson, 1902; Rogers, 1904.

Description.—Plant very large, generally erect, without runners or decidedly spreading branches, very thick stemmed, green throughout, late-intermediate in season, long in bearing, moderately to heavily productive. Leaf medium in size, dark green in color, of glossy surface, wide across leaflets. Flowers light pink. Snap pods uniform in size, medium long, extremely wide, straight, flat, dark green, brittle, of inappreciable string, of slight fiber, of good quality, fairly free from anthracnose. Point of pod short, straight, and generally projecting from middle end of pod. Green shell pods borne mostly below foliage, never appreciably splashed or colored, moderately depressed between seeds, about 5½ inches long, and usually containing 6 or 7 seeds very crowded in pod. Dry pods generally easy to thrash. Dry seeds large-medium, proportionally short, roundish oval through cross section, truncate or rounded at ends, larger at one end than at other, rounded or full at eye, solid deep carmine-violet.

Comparison.—One of the lesser grown varieties of the country. Particularly useful as snaps and green shell beans for home or market, no other variety, except possibly Warren Bush and Ruby Horticultural Bush, combining these two uses so perfectly. The texture of its thick pod walls, which are fully as free from fiber as most of the round-podded sorts, is quite different from that of the soft, fleshy-podded varieties, and its pods are preferred by some for snaps to such varieties as Red Valentine. As green shell beans it is unsurpassed in size and shape of both pod and seed, but has not the advantage of white seed like White Kidney nor of beautifully splashed pods like Ruby Horticultural and Improved Goddard. Especially useful as snaps because fit for this purpose for so long a time. More like Warren Bush than any other, differing in no important respect except color of seed. Next most like Ruby Horticultural in appearance, general usefulness, and value. Pods of very similar shape to Lazy Wife Pole.

Synonym.—Dwarf Red Cranberry.

History.—Introduced in 1884 by the former Aaron Low Seed Company.

Illustrations.—Snap pods are about same shape and size as Warren Bush (Pl. IX, 2).

MARBLEHEAD HORTICULTURAL.

Listed by 2 seedsmen. Seeds tested: Ferry, 1900, 1902; Gregory, 1897, 1905.

Description.—Plant medium in size, very erect, without runners or spreading branches, thick stemmed, green throughout, intermediate in season, long to moderate in bearing period, moderately productive. Leaf large, dark green, wide across leaflets, of smooth surface. Flowers pink. Snap pods uniform in size, long, straight, flat, dark green, somewhat tough, very stringy, of much fiber, of poor to medium quality, fairly free from anthracnose. Point of pod medium in size, slightly curved. Green shell pods borne both above and below foliage, splashed with dull reddish purple, moderately depressed between seeds, about 5⅞ inches long, and usually containing 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds large-medium in size, proportionally short, roundish oval through cross section, truncate or rounded at ends, straight at eye, pale buff in color, generally sparingly splashed with violet-purple but with occasional seeds almost solid violet-purple.

Comparison.—Little known and planted. Satisfactory as snaps for market gardening, especially in New England, where Horticultural varieties of all kinds succeed well. Too tough and stringy as snaps for home use. Principally planted for green shell beans, but even for this purpose it will rarely prove as valuable as Improved Goddard, being smaller podded, less productive, and less attractive. Most like Crimson Beauty in appearance as well as in general usefulness and value, and resembling also Ruby Horticultural Bush.

History.—Introduced in 1882 by Jas. J. H. Gregory & Son, who write the variety was obtained from a Mr. Dodge, of Beverly, Mass.

Illustrations.—Dry seeds are shown on Plate II, 24; green shell pods are as much like Improved Goddard (Pl. XIV, 3) as any of illustrations, differing in color of splashing and in smaller, narrower pods.

MOHAWK.

Listed by 121 seedsmen. Seeds tested: Burpee, 1901, 1906; Ferry, 1899, 1900, 1903 Keeney, 1904–1906; May, 1897; Rice, 1905, 1906; Thorburn, 1901, 1902.

Description.—Plant large, very erect, without runners, but sometimes drooping and spreading when old, thick stemmed, green throughout, early, of moderate bearing period, heavily to moderately productive. Leaf large, dark green, wide across leaflets. Flowers light pink. Snap pods variable in length, long, straight, oval-flat through cross section, medium green, tough, very stringy, of much fiber, of poor quality, moderately free from anthracnose. Point of pod medium in length and straight. Green shell pods borne equally above and below foliage, sparingly splashed with reddish purple, about 6⅜ inches long, and usually containing 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds large-medium, long, oval through cross section, truncate or rounded at ends, straight at eye, dark dull violet splashed with pale buff, sometimes almost solid dark dull violet.

Comparison.—A standard garden variety in this country since 1840 and to-day still one of the ten most largely grown bush sorts. Being a fine shipper, extremely hardy, productive, and producing long, straight, handsome pods, it is generally a profitable variety for market gardening, but is decidedly too tough and stringy as snaps for home use. As a green shell bean it is not nearly so large seeded, handsome, or desirable as Improved Goddard or Ruby Horticultural. Similar in appearance and general usefulness to French Mohawk and Long Yellow Six Weeks, differing from latter principally in color of seed, in straighter, flatter, tougher, darker green, splashed pods, and larger, coarser vines.

Synonyms.—Brown Six Weeks, North Star.

History.—Cultivated in this country at least since 1820.

Illustrations.—Dry seeds are shown on Plate III, 10; cross section of snap pods on Plate V, 17; snap pods on Plate XII, 4.

NAVY PEA FIELD.

Listed by 67 seedsmen. Seeds tested: Ferry, 1902, 1905; Johnson & Stokes, 1897.

Description.—Plant large, very spreading, with many runners lying loosely over ground, slender stemmed, green throughout, late for garden snaps, early as a field bean of short bearing period, very heavily productive. Leaf very small, medium green, smooth. Flowers white. Snap pods very uniform in size, very short, straight, flat, becoming almost round at the green shell stage, very light green in color, very tough, very stringy, of much fiber, very poor in quality, free from anthracnose. Point of pod short and straight. Green shell pods borne mostly below foliage, never colored or splashed, moderately depressed on outside between seeds, about 3¾ inches long, and usually containing 6 seeds crowded in pod. Dry pods very easy to thrash. Dry seeds very small, very short, or almost as wide as long, roundish oval through cross section, generally well rounded at ends, full or rounded at eye, solid white.

Comparison.—This variety, represented by many local names and strains and commonly known in the produce trade as Marrow Peas, is the principal field variety of the United States. It is wholly unsuited for use as snaps and green shell beans and is grown only for its dry seeds, its total plantings far excelling those of all garden varieties combined. Similar to Snowflake Pea and Prolific Tree, differing from former principally in later season, flatter pods, larger vine, and larger, rounder seed, and from latter principally in earlier season and smaller vine and pod.

Synonyms.—In certain local markets and with many seedsmen this variety is regarded as identical with Banner Leafless, Bismarck Great German Soup, Boston Pea, California Branch, California Pea, California Tree, California Wonder, Early Minnesota, June Bush, Marrow Pea, Mountain, Prizewinner, Salzer's Tree, but sometimes Day's Leafless Medium, White Marrow, and other field sorts are also used for these varieties.

History.—Listed by American seedsmen under this name at least since 1872.

Illustrations.—Dry seeds are shown on Plate IV, 2; cross section of snap pods on Plate V, 3; and green shell pods on Plate XIII, 3; leaf is similar to Snowflake (Pl. XXIII, 5).

NE PLUS ULTRA.

Listed by 5 seedsmen. Seeds tested: Burpee, 1901; Denison, 1903; Farquhar, 1904, 1905; Thorburn, 1897, 1900–1902; Weeber & Don, 1906.

Description.—Plant small-medium in size, very erect, without runners or spreading branches, somewhat slender stemmed, green throughout, very early, short in bearing period, moderately productive. Leaf medium in size, medium green in color, smooth. Flowers light pink. Snap pods very uniform, long, slightly curved, oval-flat through cross section, light green, very tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod long and straight. Green shell pods borne both above and below foliage, never colored or splashed, slightly depressed between seeds, about 5⅞ inches long and usually containing about 6 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds of medium size, long, roundish oval through cross section, solid brownish ocher in color except minute brown area around eye.

Comparison.—Little known or planted in this country, but a standard variety in Europe, where it is largely used for forcing in greenhouses. In America its usefulness is about same as described for Long Yellow Six Weeks, and pods and vines are more like that variety than any other, differing principally in productiveness, earlier season, and smaller, narrower, straighter, tougher pods. Also similar to Vienna Forcing. Considerable difference exists in stocks of this variety, the type here described being that of the earlier, narrower podded strain, which seems to be more generally recognized than the one which is about same as Long Yellow Six Weeks.

History.—Brought over from England about 1880.

Illustrations.—Snap pods and cross section are similar to Vienna Forcing (Pl. XII, 2, and Pl. V, 5, respectively).

PROLIFIC TREE FIELD.

Listed by 24 seedsmen. Seeds tested: Farquhar, 1902; Hastings, 1905; Johnson & Stokes, 1897.

Description.—Plant very large, very spreading, with many runners lying loosely over ground, slender stemmed, green throughout, very late as snaps and field beans, very long in bearing, very heavily productive. Leaf very small, medium green. Snap pods very uniform in size, short, straight, flat, becoming almost round at green shell stage, very light green in color, very tough, very stringy, of much fiber, very poor in quality, very free from anthracnose. Point of pod short and straight. Green shell pods borne mostly below foliage, never colored or splashed, depressed on outside between seeds, about 4¼ inches long, and usually containing 6 or 7 seeds crowded in pod. Dry pods very easy to thrash. Dry seeds small, very short, or almost as wide as long, roundish oval through cross section, generally well rounded at ends, full or rounded at eye, solid white.

Comparison.—A standard field variety of the United States. Wholly unsuited for snaps and green shell beans and grown only for dry seed. More like Navy Pea than any other, differing principally in larger vines, pods, seeds, and much later season.

Synonym.—Mexican tree and many other names of local origin are often applied to this variety, but as is common in field beans these names are very loosely used and often applied to several different types of field varieties.

History.—Name has been in use among American seedsmen at least since 1882.

Illustrations.—Dry seeds, cross section of snap pods, and green shell pods are similar to Navy Pea (Pl. IV, 2. Pl. V, 3, and Pl. XIII, 3, respectively); leaf is similar to Snowflake (Pl. XXIII, 5).

RED KIDNEY FIELD.

Listed by 25 seedsmen. Seeds tested: Gregory, 1902; Grenell, 1903.

Description.—Plant very large, erect, without runners or decidedly spreading branches, thick stemmed, green throughout, very late as garden snaps, intermediate as field beans, of long bearing period, heavily to moderately productive. Leaf large, medium green. Flowers light pink. Snap pods somewhat variable in size, long, straight, flat, dark green, very tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod medium in length and straight. Green shell pods borne both above and below foliage, never appreciably splashed or colored, much depressed on outside between seeds, about 6 inches long, and usually containing 5 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds large, long, flattish oval through cross section, generally well rounded at ends, straight or slightly incurved at eye, solid purplish brown in some stocks and garnet brown in others.

Comparison.—A standard field variety and grown almost exclusively for dry beans but excellent also as green shell. Grown mainly for export to West Indies and South America and used in New Orleans and in other sections where there are people of Spanish descent. Decidedly too tough podded for use as snaps. Like all field beans this variety is generally bought by seedsmen on the open market and rarely contracted for and specially selected as are the garden varieties. For this reason the variety varies greatly in type, especially in color of seed. Most like White Kidney, differing in no important respect except in color of seed.

History.—A very old sort listed by American seedsmen under that name at least since 1875, but this type was evidently known to farmers long before that date.

Illustrations.—Green shell pods are shown on Plate XIV, 1, seeds on Plate I, 25.

RED VALENTINE.

Listed by 188 seedsmen. Seeds tested: F. Bolgiano, 1903; Buckbee, 1897; Burpee, 1897, 1901, 1903, 1906; Denison, 1903; Cleveland, 1903; Dibble, 1903; Farquhar, 1901; Ferry, 1900, 1901, 1903, 1904; Heiskell, 1903; Keeney, 1903–1906; May, 1897; Philipps, 1903; Rice, 1906; Rogers, 1904–1906; Schlegel & Fottler, 1901; Sioux, 1905; Thorburn, 1901, 1902.

Description.—Plant medium in size, very erect, without runners or spreading branches, slender stemmed, green throughout, early, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color, very narrow across leaflets. Flowers white. Snap pods uniform in size, of medium length, curved, round-broad through cross section, deeply creasebacked, medium green, extremely brittle, fairly stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long, slightly curved. Green shell pods often borne on long stems very high on plant, never splashed or colored, somewhat depressed between seeds, about 4¾ inches long, and usually containing 5 or 6 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds of medium size, proportionally long, roundish through cross section, truncate or rounded at ends, straight at eye, irregular in shape, often twisted or bulged out in places, purplish red splashed with pale buff.

Comparison.—A standard variety since 1865 and to-day the most extensively planted and generally listed of all garden beans. Popular with market gardeners because so early and reliable and the favorite with home gardeners on account of excellent quality and other good features. Fully as tender, as fleshy, and as long in condition for use as most of the absolutely stringless varieties. Pods too small for good green shell beans and plant generally less productive than Refugee and Byer's Bush. Of same general usefulness and value as Burpee's Stringless Green Pod and Extra Early Refugee, differing from the latter principally in color of seed, taller vine, more open habit, and more fleshy pods. Differs from Cream Valentine and White Valentine only in color of seed and greater productiveness. Quite different from Black Valentine in color of seed, smaller vine, and thicker, tenderer pods.

Synonyms.—Buckbee's Early Wonder Bush, Buist's Early Lightning Valentine, Early Wonder Bush, Lightning Valentine, Wood's Earliest Red Valentine.

Confusing names.—Black Valentine, Brown-Speckled Valentine, Cream Valentine, Giant Valentine, White Valentine, all of which are very different from Red Valentine.

History.—Known in this country at least since 1845. The present day type is quite different from the flat-podded type in common use previous to 1870.

Illustrations.—Dry seeds are shown on Plate I, 13; snap pods on Plate VII, 3; and leaf on Plate XXIII, 6; cross sections of snap pods are similar to Burpee's Stringless Green Pod (Pl. V, 13), differing principally in smaller size.

REFUGEE.

Listed by 115 seedsmen. Seeds tested: F. Bolgiano, 1903; Burpee, 1901; Farquhar, 1901; Ferry, 1899–1901, 1903; Grenell, 1905; Haskell, 1903; Keeney, 1904–1906; Livingston, 1901; Maule, 1905; Philipps, 1903; Rogers, 1904; Thorburn, 1901, 1902.

Description of round-podded type.—Plant very large, very spreading, with many semirunners and drooping branches lying loosely over ground, slender stemmed, green throughout, very late, very long in bearing, very heavily productive. Leaf small, light grayish green, very narrow across leaflets, of smooth surface, of very long petiole. Flowers pink. Snap pods uniform in size, medium long, slightly curved, round, medium green, brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long and curved. Green shell pods borne well below foliage, splashed with reddish purple, quite full on outside between seeds, about 5$\frac{3}{8}$ inches long, and usually containing 6 seeds crowded in pod. Dry pods moderately hard to thrash. Dry seeds of medium size, slender, roundish through cross section, truncate or rounded at ends, straight at eye, mostly violet-purple, but always more or less splashed with pale buff.

Description of flat-podded type.—Same as above except pods are flattish oval in shape, somewhat tough, more stringy, and of fair quality.

Comparison of round-podded type.—One of the five most largely grown bush sorts, and the only late snap bean planted to any extent in this country. Largely grown by southern gardeners for northern shipment and more extensively used by canners than any other variety. One of the most hardy, reliable, and productive of all snap beans, the only late, round-podded sorts comparing with it in these respects being Golden Refugee and Byer's Bush. Too narrow podded for good green shell beans. More like Golden Refugee than any other, differing principally in color of seed, larger vine, a few days later season, and darker colored pods. Differs from Extra Early Refugee principally in greater productiveness, later season, larger vine, and longer, straighter pods.

Comparison of flat-podded type.—Now largely replaced by the improved strain described above, which, because of its rounder, tenderer, and less stringy pods, is generally regarded as by far the best strain.

Synonyms.—Brown-Speckled Valentine, Thousand to One, Late Prolific Refugee.

Confusing names.—Extra Early Refugee, Golden Refugee, Galega Refugee, McKinley Refugee, Silver Refugee, all of which are very different from Refugee.

History.—One of the oldest varieties cultivated in this country. Listed by J. M. Thorburn & Co. since 1822.

Illustrations.—Dry seeds of round-podded type are shown on Plate III, 5; snap pods of round type are shown on Plate XII, 3; cross sections of snap pods of round and flat-podded types on Plate V, 11 and 12, respectively.

ROUND YELLOW SIX WEEKS.

Listed by 35 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900; Keeney, 1904, 1906; Rogers, 1904.

Description.—Plant small-medium in size, very erect, bushy, compact, without runners or spreading branches, slender stemmed, green throughout, early-intermediate in season, of moderate bearing period, moderately productive. Leaf medium in size, light green in color, and of smooth surface. Flowers light pink. Snap pods very uniform in size, medium in length, straight, oval through cross section, becoming round at green shell stage, light green in color, brittle, of inappreciable string, of small fiber, of good quality, fairly free from anthracnose. Point of pod short and either slightly curved or straight. Green shell pods borne equally above and below foliage, never appreciably colored or splashed, much depressed between seeds, about 4½ inches long, and usually containing 5 or 6 seeds tightly crowded in pod. Dry pods moderately hard to thrash. Dry seeds small-medium, proportionally short, roundish through cross section, generally well rounded at ends, flat at eye, sliver from pod commonly attached to eye, solid straw in color, sometimes tinged with coppery yellow, but always with minute dark brownish area around eye.

Comparison.—This secondary garden variety is too small seeded and short podded to make good green shell beans, and is decidedly lacking in vigor and productiveness for profitable field beans, but is excellent as early snaps for either home or market, being specially valuable because of its reliability, hardiness, high quality, and uniform size and shape of pods. More like Taylor's Green Pod than any other, and next most like China Red Eye, differing principally in earlier season, peculiarly well rounded habit of growth, and rounder, shorter, stringless pods.

History.—Grown in this country at least since 1865.

Illustrations.—Dry seeds are shown on Plate I, 4; snap pods on Plate XIII, 5.

RUBY HORTICULTURAL BUSH.

Listed by only 3 seedsmen under this name and by 101 under name of Dwarf Horticultural. Seeds tested: Rogers, 1904.

Description.—Plant medium in size, of very erect, well rounded, compact form, without runners or spreading branches, thick stemmed, wholly green, early, of moderate bearing period, fairly productive. Leaf large, dark green, unusually wide across leaflets. Flowers light pink. Snap pods uniform in size, medium in length, slightly curved, flat, becoming almost round at green shell stage, dark green, brittle, stringless, of inappreciable fiber, of medium quality, quite free from anthracnose. Point of pod short and straight. Green shell pods borne both above and below foliage, freely splashed with brilliant red, moderately depressed between seeds, about 5½ inches long, and usually containing 6 seeds tightly crowded in pod. Dry pods sometimes hard to thrash. Dry seeds large-medium, proportionally short, oval through cross section, generally truncate at ends, rounded or full at eye, pale buff in color, freely splashed with purplish red.

Comparison.—One of the standard variety types of the country, but generally known and sold under name of Dwarf Horticultural. Excellent as snaps or green shell beans for home or market, no other variety, except possibly Low's Champion and Warren Bush, combining these two uses so perfectly. Superior to above varieties in earliness and beautifully splashed pods, but not nearly so productive nor so long in bearing. Most like Marblehead Horticultural in appearance, differing principally in earlier season and smaller, stringless, reddish splashed pods with smaller, more compact vine.

Synonyms.—Carmine-Podded Horticultural Bush, Dwarf Horticultural, Early Carmine-Podded Horticultural, Speckled Cranberry Bush.

History.—Introduced in 1888 by James J. H. Gregory & Son as Early Carmine-Podded Horticultural Bush, which name was substituted by seedsmen a few years later for Ruby Horticultural Bush, by which the type is now best known.

Illustrations.—Dry seeds are shown on Plate I, 7; leaf on Plate XXIII, 7; while snap pods are similar in shape to Mohawk (Pl. XII, 4), differing principally in being shorter and proportionally wider; green shell pods are splashed similar to and are almost as wide as Improved Goddard (Pl. XIV, 3).

SNOWFLAKE FIELD.

Listed by 4 seedsmen. Seeds tested: Gregory, 1897; Johnson & Stokes, 1897; Keeney, 1904–1906.

Description.—Plant large, very spreading, with many runners lying loosely over ground, slender stemmed, green throughout, intermediate in season as snaps, very early as field beans, short in bearing period, heavily productive. Leaf very small, medium green, and of smooth surface. Flowers white. Snap pods very uniform in size, very short, straight, flat, becoming almost round at green shell stage, very light green, very tough, very stringy, of much fiber, of very poor quality, very free from anthracnose. Point of pod short and straight. Green shell pods borne mostly below foliage, never colored or splashed, depressed on outside between seeds, about $3\frac{3}{4}$ inches long, and usually containing 6 or 7 seeds crowded in pod. Dry pods very easy to thrash. Dry seeds very small, proportionally short, roundish oval through cross section, generally well rounded at ends, full or rounded at eye, solid white.

Comparison.—Strictly a field variety. Planted only for dry beans and wholly unsuited for use as snaps and green shell beans. Very similar to Navy Pea and of same general usefulness and value, differing only in smaller seeds, earlier season, narrower pods, and smaller, less productive vine. Except California Small White, the smallest seeded of the field beans.

History.—Introduced in 1888 by James J. H. Gregory & Son.

Illustrations.—Dry seeds are shown on Plate IV, 1; leaf on Plate XXIII, 5; cross section of snap pods and green shell pods are similar to Navy Pea (Pl. V, 3, and Pl. XIII, 3, respectively), differing principally in flatter shape.

TAYLOR'S GREEN POD.

Listed by 1 seedsman. Seeds tested: Wood, Stubbs, & Co., 1905.

Description.—Plant very small, very erect, bushy, compact, low growing, of well-rounded form, always without runners and spreading branches, somewhat slender stemmed, green throughout, very early, of moderate bearing period, lightly to moderately productive. Leaf small, smooth, dark green. Flowers light pink. Snap pods very uniform in size, medium in length, straight, oval-round through cross section, but becoming round at green shell stage, light green in color, brittle, inappreciably stringy, of slight fiber, of good quality, free from anthracnose. Point of pod short and either straight or slightly curved. Green shell pods borne equally above and below foliage, never appreciably colored or splashed, much depressed on outside between seeds, about $4\frac{1}{2}$ inches long, and usually containing 5 or 6 seeds very tightly crowded in pod. Dry pods moderately hard to thrash. Dry seeds small-medium, proportionally short, roundish through cross section, well rounded at ends, larger at one end than at other, rounded or flat at eye, mostly straw yellow in color, but varying to coppery yellow, always with minute brownish area around eye.

Comparison.—This little known and planted variety is of same general usefulness and value as described for Round Yellow Six Weeks and so similar in appearance as often to be thought identical. Its pods are somewhat flatter, a little shorter, and a few days earlier in season, while the plants are smaller, lower growing, and more compact in habit than any variety of American origin.

History.—Introduced in 1902 by Wood, Stubbs, & Co., who state the variety originated in Oldham County, Ky., with a Mr. Oldham.

Illustrations.—Dry seeds are shown on Plate I, 3; snap pods are very similar to Round Yellow Six Weeks (Pl. XIII, 5), differing principally in being slightly shorter and flatter.

TENNESSEE GREEN POD.

Listed by 2 seedsmen. Seeds tested: Ferry, 1904–1906; Schwill, 1905.

Description.—Plant large, very spreading, with many semirunners and drooping branches, very thick stemmed, green throughout, early-intermediate in season, long in bearing, heavily to moderately productive. Leaf large, very dark green, very wide across leaflets, and of rough surface. Flowers white. Snap pods somewhat variable in size, long, moderately curved, often much bent to one side, very flat, deeply depressed at dorsal suture, very angular or narrowed at ventral suture, medium green, somewhat tough, stringy, of moderate fiber, of poor to medium quality, free from anthracnose. Point of pod moderately long and curved. Green shell pods generally borne well above foliage on thick fruit spurs, never splashed or appreciably colored except for black lines along sutures, very much depressed between seeds, much thicker at ventral than at dorsal side, about 6¾ inches long, and usually containing 7 seeds much separated in pod. Dry pods fairly easy to thrash. Dry seeds of medium size, proportionally short, oval through cross section, generally well rounded at ends, straight at eye, solid dark hazel in color.

Comparison.—This little known and planted variety is much liked in Tennessee and the South, and is said to grow very well at the North. Although especially recommended as a green shell bean, it may be used also for snaps, as its pods are thicker and more tender than Emperor William and other flat-podded varieties of its class. Unsuited for field culture because of colored seed, coarse growth, and less productiveness and hardiness than strictly field varieties. Most like Emperor William, differing principally in color of seed, narrower pods, more spreading vine, and with fruit stalks more prominently above foliage. Pods peculiar for being more sunken between seeds than is the case in any other variety.

Synonyms.—Field's First Early, Brown Bunch.

History.—Introduced in 1904 by D. M. Ferry & Co., but known in the South some time before that date, especially near Knoxville, Tenn.

Illustrations.—Dry seeds are shown on Plate III, 19; cross sections of green shell pods on Plate V, 29 and 30; and green shell pods on Plate XIV, 2.

THORBURN'S PROLIFIC MARKET.

No longer listed by American seedsmen. Seeds tested: Thorburn, 1897, 1903, 1904; Weeber & Don, 1902.

Description.—Plant large, very spreading, with moderate number of runners and long branches lying loosely over ground, somewhat thick stemmed, green throughout, very late, of very long bearing period, very heavily productive. Leaf small, narrow, pointed, dark green. Flowers pink. Snap pods variable in size, very long, curved, oval-round through cross section, dark green, tough, stringy, of moderate fiber, of fair quality, fairly free from anthracnose. Point of pod very long and moderately curved. Green shell pods borne mostly below foliage, never appreciably splashed or colored, full on outside between seeds, about 7 inches long, and usually containing 6 or 7 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds large-medium, very slender, flattish oval through cross section, rounded or truncate at ends, incurved at eye, solid black in color.

Comparison.—This little known variety has been grown to a small extent in this country, but has always proven so uneven and impure, so late in season, and so generally unsuited to American climate that it has now mostly gone out of cultivation. Its pods vary greatly in shape, some being as round and long as the late type of Best of All, and others as flat and short as Mohawk. The greater portion of pods, however, are similar in appearance to Galega, differing principally in being rounder, longer, more irregular in shape, smaller in vine, less productive, and less reliable.

History.—Introduced from Germany about 1894 by J. M. Thorburn & Co.

Illustrations.—Snap pods are shown on Plate XI, 1; dry seeds do not closely resemble any of illustrations, but are about same color as Black Valentine (Pl. III, 20).

TRIUMPH OF FRAMES.

Listed by 7 seedsmen. Seeds tested: Dreer, 1905, 1906; Thorburn, 1897, 1901, 1902.

Description.—Plant small, short stemmed, very erect, compact, and dense in habit, without runners or spreading branches, somewhat slender stemmed, green throughout, intermediate in season, of moderate to long bearing period, heavily to moderately productive. Leaf of medium-small size, very dark green, wide across leaflets, and of rough surface. Flowers white. Snap pods uniform in size, of medium length, much curved, oval-round through cross section, much narrowed and occasionally twisted at stem end, very dark green, very tough and stringy, of much fiber, of very poor quality, very free from anthracnose. Point of pod of medium size very slender, moderately curved. Green shell pods borne on numerous stiff clusters prominently above foliage, never splashed but always remaining more or less greenish in color, very full between seeds, about 5½ inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds of medium size, slender, flattish oval through cross section, rounded or truncate at ends, generally straight at eye, solid sea green in color.

Comparison.—Little known or planted in this country, but a great favorite in Europe for forcing in greenhouses. Highly esteemed by some because of its green-colored seeds, which, after being soaked and cooked, retain their green color almost as well as fresh beans from the garden. In this country, however, there is but a small demand for this class of dried beans, and since snap pods are rarely gathered as young and undersized as is customary in Europe, this variety will be found too tough and stringy for outdoor culture as snaps. Unless plants are pulled a little before thoroughly ripe and dry and unless care is taken to protect the pods from sun and rain during the curing period, the dry seed, instead of being clear green in color, will bleach and fade almost to solid white. Most like Wonder of France, differing principally in rounder, better filled, and more attractive pods, which are peculiar for their extremely dark green color and very narrowed stem end.

History.—A foreign sort first listed by American seedsmen about 1894.

Illustrations.—Snap pods are shown on Plate VIII, 4; cross section of snap pod on Plate V, 4.

VEITCH'S FORCING.

No longer listed by American seedsmen. Seeds tested: Thorburn, 1905, 1906.

Description.—Plant small, very erect, bushy, close jointed, dense in habit, without runners or spreading branches, green throughout, early, long to moderate in bearing period, moderately productive. Leaf small, medium green. Flowers light pink.

Snap pods uniform in size, of medium length, much curved, oval-flat through cross section, much narrowed at stem end, dark green in color, very tough and stringy, of much hard fiber, of poor quality, fairly free from anthracnose. Point of pod medium in size, very slender, moderately curved. Green shell pods borne in numerous clusters prominently above foliage, never colored or splashed, full on outside between seeds, about 5 inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds small, slender, flattish oval through cross section, truncate or rounded at ends, straight or slightly incurved at eye, solid brownish terra cotta in color.

Comparison.—Little known or planted in this country, but used in England for forcing in greenhouses and recommended by some American seedsmen for this purpose. Decidedly too narrow podded and small seeded for good green shell beans and too tough podded as snaps for outdoor growing in America. Of usefulness and value similar to Vienna Forcing and Ne Plus Ultra; also like them in general appearance. Pods of similar shape to Wonder of France and Triumph of Frames.

History.—An English sort of recent introduction. Not listed after 1905 by J. M. Thorburn & Co., who seem to be the only seedsmen who have ever listed the variety in this country.

Illustrations.—Snap pods and cross sections are similar to Triumph of Frames (Pl. VIII, 4, and Pl. V, 4, respectively), differing principally in color of seed and in lighter green and decidedly flatter pods.

VICK'S PROLIFIC PICKLER.

Listed by 1 seedsman. Seeds tested: Vick, 1905.

Description.—Plant very large, very erect, without runners or spreading branches, thick stemmed, green throughout, very late, long in bearing period, very heavily productive. Leaf large, dark green, and of somewhat rough surface. Flowers light pink. Snap pods variable in size, very long, very curved, flat, of very rough and coarse surface, dark green, very tough, very stringy, of much hard fiber, very poor in quality, free from anthracnose. Point of pod long and slightly curved. Green shell pods borne both above and below foliage, never appreciably colored or splashed, much depressed between seeds, about 8⅜ inches long, and usually containing 7 or 8 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds large, long, very flattish oval through cross section, truncate or rounded at ends, straight or incurved at eye, solid plum violet in color.

Comparison.—This little known and planted variety is similar to and of same usefulness as Canadian Wonder, differing from it in no important respects except color of seed and larger, more curved pods.

Synonyms.—Gunkler, Prolific Pickler.

History.—Introduced in 1895 by James Vick's Sons, and said to have been brought from Germany by gardeners near Rochester, N. Y., by whom it is known as Gunkler.

Illustrations.—Dry seeds are shown on Plate III, 23; green shell pod and leaf resemble Canadian Wonder (Pl. X, 2, and Pl. XXIV, 6, respectively), differing principally in longer and more curved pods.

VIENNA FORCING.

Listed by 1 seedsman. Seeds tested: Thorburn, 1900–1903, 1905, 1906.

Description.—Plant small-medium in size, very erect, close jointed, compact, without runners or spreading branches, somewhat thick stemmed, green throughout, very early, of short bearing period, moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods very uniform in size, long, slightly curved, oval-flat through cross section, light green, very tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod long and straight. Green shell pods borne both above and below foliage, never colored or splashed, slightly depressed between seeds, about 5⅞ inches long, and usually containing about 6 seeds fairly close in pods. Dry pods very easy to thrash. Dry seeds of medium size, slender, oval through cross section, truncate or rounded at ends, generally straight at eye, solid white except small area of brownish ocher around eye.

Comparison.—Little known or planted in this country, but used in Europe for forcing in greenhouses and recommended by American seedsmen for this purpose. Unless gathered at an extremely young stage, as is customary in Europe, this variety will prove unsuited as snaps for outdoor growing in America. Too narrow podded, small seeded, and unproductive for satisfactory green shell beans. Of same general usefulness and value as Ne Plus Ultra, the pods of the two varieties being hardly distinguishable except for color of seed, smaller vine, and more compact, bushy habit.

History.—A German variety of recent introduction.

Illustrations.—Dry seeds are shown on Plate III, 2; snap pods on Plate XII, 2; and cross section of snap pod on Plate V, 5.

VINELESS MARROW FIELD.

Listed by 1 seedsman. Seeds tested: Burpee, 1901; Ferry, 1900, 1902, 1905.

Description.—Plant large, erect, without runners or spreading branches, thick stemmed, wholly green throughout, late as garden snaps, intermediate as field beans, long to moderate in bearing period, heavily productive. Leaf large, medium green. Flowers white. Snap pods somewhat variable in size, long-medium, slightly curved, very flat, light green, very tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod medium in size and either straight or slightly curved. Green shell pods borne both above and below foliage, never splashed or colored, much depressed between seeds, about 5⅜ inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds of medium size, somewhat short, roundish oval through cross section, invariably well rounded at ends, much larger at one end than at other, rounded or straight at eye, solid white.

Comparison.—A strictly field variety and suitable for green shell beans, but decidedly too tough for use as snaps. The variety may be described as an erect form of the common White Marrow, differing from it in no important respect except for freedom from runners and in late season. Of about same habit as Red Kidney.

History.—Grown to a limited extent in western New York, but never brought prominently before public until listed by D. M. Ferry & Co. in 1897.

Illustrations.—Dry seeds are shown on Plate IV, 14; green shell pods are more like Red Kidney (Pl. XIV, 1) than any of the bush varieties here illustrated, differing principally in being smaller and more curved or approaching the shape of Concord Pole (Pl. XX, 2).

WARREN BUSH.

Listed by 11 seedsmen. Seeds tested: Farquhar, 1905; Iowa Seed Company, 1902; Rogers, 1904, 1906.

Description.—Plant very large, generally erect, without runners or decided spreading branches, very thick stemmed, green throughout, late-intermediate in season, long bearing, heavily productive. Leaf medium in size, dark green in color, of glossy surface, wide across leaflets. Flowers light pink. Snap pods uniform in size, long-medium, straight, flat, dark green, brittle, of inappreciable string, of small fiber, of good quality, free from anthracnose. Point of pod short, straight, and generally borne from middle end of pod. Green shell pods borne mostly below foliage, never appreciably splashed or colored, moderately depressed between seeds, about 5½ inches long, and usually containing 6 or 7 seeds very crowded in pod. Dry pods generally easy to thrash. Dry seeds large-medium, proportionally short, roundish oval through cross section, generally well rounded at ends, larger at one end than at other, round or full at eye, solid blackish violet in color.

Comparison.—One of the lesser grown varieties of the country and of same usefulness and value as Low's Champion, differing from it in no important respect except for an immaterial difference in color of seed.

History.—Introduced about 1884 by several American seedsmen and originated by David Warren, of Essex County, Mass.

Illustrations.—Dry seeds are shown on Plate II, 11, and snap pods on Plate IX, 2.

WARWICK.

Listed by 3 seedsmen. Seeds tested: Henderson, 1900, 1905; Thorburn, 1901, 1902.

Description.—Plant medium in size, very erect, without runners or spreading branches, somewhat thick stemmed, green throughout, very early, of short bearing period, lightly to moderately productive. Leaf medium in size, medium green in color. Flowers light pink. Snap pods uniform in size, medium in length, straight, flat, light green, tough, very stringy, of much fiber, poor in quality, free from anthracnose. Point of pod medium in length, and either slightly curved or straight. Green shell pods borne equally above and below foliage, sparingly splashed with light red, moderately depressed between seeds, about 5½ inches long, and generally containing 5 or 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size, proportionally medium in length, roundish oval through cross section, truncate or rounded at ends, rounded or straight at eye, purplish red sparingly splashed with pale buff, sometimes almost solid purplish red.

Comparison.—This little known and planted variety is sometimes valuable because of its extreme earliness, but is of no superior value in other respects. It gives snap pods before any other green-podded variety, preceding by a few days Bountiful and Red Valentine, while as green shell beans it is second in earliness to Lightning. Its pods are, however, somewhat too tough to be satisfactory for home use and too short and small seeded to make attractive green shell beans. Variety is also deficient in productiveness and length of bearing period. Of similar usefulness to China Red Eye and more like it in appearance than any other. Unlike that variety, it is too unproductive and of too small growth to be suitable for field beans and differs further in color of seed and smaller, flatter, straighter, splashed pods.

History.—Introduced about 1890 by Peter Henderson & Co., who state the variety came from England.

Illustrations.—Dry seeds are shown on Plate I, 14; snap pods are similar in shape to China Red Eye (Pl. XI, 2), differing principally in that pods are shorter, flatter, and straight at stem end.

WHITE KIDNEY FIELD.

Listed by 53 seedsmen. Seeds tested: Keeney, 1906; Thorburn, 1897, 1901, 1903, 1905.

Description.—Plant very large, erect, without runners or decidedly spreading branches, thick stemmed, green throughout, late as snaps and field beans, of long bearing period, moderately productive. Leaf large, medium green. Flowers white. Snap pods somewhat variable in size, long, straight, flat, light green, very tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod medium in length and straight. Green shell pods borne both above and below foliage, never splashed or colored, much depressed on outside between seeds, about 6 inches long, and usually containing 5 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds large, slender, oval through cross section, generally well rounded at ends, straight or slightly incurved at eye, solid white.

Comparison.—A well-known field variety grown to a limited extent in most of the bean-growing sections of the country. Excellent for green shell beans, but decidedly too tough for snaps. Except in color of seed the variety is almost the same as Red Kidney. Resembles Vineless Marrow in size and shape of seed.

Synonym.—Royal Dwarf Kidney.

History.—Cultivated in this country at least since 1825 and one of the oldest cultivated varieties.

Illustrations.—Dry seeds are shown on Plate IV, 22; green shell pods are similar to Red Kidney (Pl. XIV, 1).

WHITE MARROW FIELD.

Listed by 85 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900, 1902; Keeney, 1904, 1905; Thorburn, 1897, 1901, 1905.

Description.—Plant very large, very spreading, with many runners lying loosely over ground, thick stemmed, green throughout, late as garden snaps, intermediate in season as a field bean, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers white. Snap pods somewhat variable in size, long-medium, slightly curved, very flat, changing to somewhat oval at green shell stage, light green, very tough, very stringy, of much fiber, of poor quality, free from anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne mostly below foliage, never splashed or colored, much depressed between seeds, about 5⅜ inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds of medium size, proportionally short, roundish through cross section, invariably well rounded at ends, much larger at one end than at other, rounded or full at eye, solid white.

Comparison.—A standard field variety in all the bean-growing sections of the country, the total plantings of the variety exceeding those of any strictly garden variety. Suitable for green shell beans, but too tough, stringy, and imperfect in shape for good snaps. More like Vineless Marrow than any other, differing principally in more spreading habit and later season.

Synonyms.—Dwarf White Cranberry, Great Western.

History.—A very old variety, cultivated in this country at least since 1825.

Illustrations.—Dry seeds are shown on Plate IV, 15; green shell pods are more like those of Red Kidney (Pl. XIV, 1) than any of the bush varieties here illustrated, differing principally in being smaller and more curved, or approaching more the shape of Concord Pole (Pl. XX, 2).

WHITE VALENTINE.

Listed by 8 seedsmen. Seeds tested: Rice, 1903, 1905; Thorburn, 1897.

Description.—Plant medium in size, very erect, absolutely without runners or spreading branches, slender stemmed, green throughout, early, of moderate bearing period, moderately productive. Leaf medium in size, medium green in color, very narrow across leaflets, smooth. Flowers white. Snap pods uniform in size, of medium length, curved, round-broad through cross section, deeply creasebacked, medium green, extremely brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long and slightly curved. Green shell pods borne high on plant and mostly above foliage, never colored or splashed, somewhat depressed between seeds, about 4¾ inches long, and usually containing 5 or 6 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds of medium size, proportionally long, roundish through cross section, truncate or rounded at ends, straight at eye, generally irregular in shape, often twisted or bulged out in places, solid white in color

Comparison.—Although seemingly possessing the good qualities of Red Valentine and having in addition the advantage of white seed and greater earliness, this variety has never been largely grown in this country. The reason of its unpopularity is said by some growers to be the low germination of its seed and its lack of productiveness, but these facts have not yet been demonstrated in Department trials. Differs in appearance from Red Valentine in color of seed and possibly in lighter green pods.

Synonyms.—Union White Valentine.

Confusing names.—Black Valentine, Brown-Speckled Valentine, Cream Valentine, Giant Valentine, Red Valentine, all very different from White Valentine.

History.—First listed by American seedsmen about 1870.

Illustrations.—Dry seeds and snap pods are similar to Red Valentine (Pl. I, 13, and Pl. VII, 3, respectively), differing only in color of seeds; cross sections of snap pods are similar to Burpee's Stringless Green Pod (Pl. V, 13), differing principally in being smaller.

WONDER OF FRANCE.

Listed by 7 seedsmen. Seeds tested: Farquhar, 1905; Weeber & Don, 1906.

Description.—Plant large-medium, erect, of somewhat dense growth, without runners or spreading branches, somewhat thick stemmed, green throughout, early, of long to moderate bearing period, heavily to moderately productive. Leaf medium in size, very dark green, wide across leaflets. Flowers white. Snap pods uniform in size, medium in length, moderately curved, flat, much narrowed at stem end, occasionally twisted, often bent to one side, very dark green, very tough and stringy, of much fiber, of very poor quality, very free from anthracnose. Point of pod very slender, medium in length, moderately curved. Green shell pods borne on numerous stiff clusters prominently above foliage, never splashed, always more or less greenish tinged, slightly depressed between seeds, about 5½ inches long, and usually containing 5 or 6 seeds fairly close in pod. Dry pods easy to thrash, generally greenish in color. Dry seeds medium in size, slender, flattish oval through cross section, rounded or truncate at ends, generally straight at eye, solid sea green in color.

Comparison.—Little known or cultivated in this country, but well known in Europe, where it is valued in same way as described for Triumph of Frames. More like that variety than any other, but, because of more spreading habit and less uniform shape, it is not generally as desirable or as handsome for snap pods.

Synonyms.—Green Gem, Green-Seeded Flageolet.

History.—Of French origin and first listed by American seedsmen about 1880.

Illustrations.—Snap pods and cross sections are similar to Triumph of Frames (Pl. VIII, 4, and Pl. V, 4, respectively), differing principally in being much flatter, more twisted, bent, and irregular in shape.

YANKEE WINTER.

Listed by 1 seedsman. Seeds tested: Salzer, 1904, 1905.

Description.—Plant very large, very spreading, with many runners lying loosely over ground, slender stemmed, green throughout, late, long in bearing period, moderately productive. Leaf very small, medium green. Flowers white. Snap pods uniform in size, short, curved, roundish to rectangular in cross section, of very irregular surface, very deeply creasebacked at both dorsal and ventral sutures, very light green, somewhat tough, stringy, of moderate fiber, of fair quality, quite free from anthracnose. Point of pod medium in length and slightly curved. Green shell pods borne mostly below foliage, never appreciably colored or splashed, full on outside between seeds, about 4⅛ inches long, and usually containing 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds very small, proportionally short, roundish oval through cross section, generally well rounded at ends, straight at eye, solid white.

Comparison.—This little known and planted variety is one of the most interesting beans on trial, its pods being remarkable for their fleshiness, rectangular shape, and deeply creasebacked form, while the vines, although like a field bean in habit of growth, produce pods which are as suitable for snaps as many strictly garden beans, It is not yet known, however, whether the variety possesses any real value. It is certainly much inferior as a field bean to Navy Pea and other standard sorts and of no value for green shell beans. Its use, if any, seems to be for snap pods for home use. More like Navy Pea than any other, differing principally in fleshiness, shape of pods, and smaller vine. Stocks generally much mixed, especially with Navy Pea.

History.—Introduced in 1901 by John A. Salzer Seed Company, who state the variety came from New England.

Illustrations.—Cross section of snap pod is shown on Plate V, 6; snap pods on Plate X, 4; dry seeds are similar to White Creaseback (Pl. IV, 7), differing principally in much smaller size.

YELLOW CRANBERRY.

Listed by 5 seedsmen. Seeds tested: Rogers, 1906; Schlegel & Fottler, 1905.

Description.—Plant large, generally erect, without runners or spreading branches, thick stemmed, green throughout, late-intermediate in season, long in bearing, heavily productive. Leaf medium in size, dark green in color, of glossy surface, wide across leaflets. Flowers light pink. Snap pods uniform in size, long-medium, curved, oval through cross section, light green in color, brittle, of inappreciable string, of small fiber, of good quality, free from anthracnose. Point of pod medium in size and slightly curved. Green shell pods borne mostly below foliage, never appreciably colored or splashed, moderately depressed on outside between seeds, about 5 inches long, and usually containing 6 or 7 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size, proportionally short, roundish through cross section, invariably well rounded at ends, larger at one end than at other, rounded or full at eye, sliver from pod sometimes attached to eye, solid straw yellow in color, occasionally tinged in places with coppery yellow, but always with minute dark brownish area around eye.

Comparison.—This very old garden variety, which has now largely gone out of cultivation, is sometimes thought to be same as Long Yellow Six Weeks, but the true type as sold by careful seedsmen is a later variety and similar to Long Yellow Six Weeks only in color of seed, besides being an all-round variety, and suitable as either snaps or green shell beans for home or market, but not especially valuable in any other respect. Of about same usefulness as Warren Bush and similar to it in appearance, having the same habit of vine, but earlier in season and with shorter, narrower pods and differently colored seed.

History.—Cultivated in this country at least since 1820.

Illustrations.—Dry seeds are shown on Plate I, 5; snap pods are similar in shape to Round Yellow Six Weeks (Pl. XIII, 5), differing principally in being flatter and larger, or approaching more the shape of Warren Bush (Pl. IX, 2).

BUSH WAX-PODDED.

As already explained, this class of Kidney beans is used almost exclusively for snaps and rarely are the different varieties grown in large fields solely for their dry seeds. Wax beans are of comparatively recent development and the varieties are rapidly increasing in number.

ALLAN'S IMPERIAL WAX.

Listed by 4 seedsmen. Seeds tested: Allan, 1904, 1905; Kendel, 1905.

Description.—Plant medium size, erect, somewhat thick stemmed, without runners, wholly green, early-intermediate in season, of moderate bearing period, heavily to moderately productive. Leaf large, medium green. Flowers white. Snap pods very uniform in size, long, uniformly slightly curved at middle, flat, light yellow in color, usually more or less greenish tinged, occasionally almost solid light green, tough, very stringy, of much fiber, poor to medium in quality, fairly free from anthracnose. Point of pod long and straight or slightly curved. Green shell pods borne equally above and below foliage, never colored or splashed, slightly depressed between seeds, about 6⅛ inches long, and usually containing 6 seeds fairly close in pod. Dry pods very easy to thrash. Dry seeds large-medium in size, medium in length, oval through cross section, truncate or rounded at ends, generally straight at eye, white with golden brown area around eye, covering about one-sixth of bean.

Comparison.—Little known and planted. Exceedingly hardy, sure cropping, and bearing large pods of uniformly fine shape, but decidedly too stringy and tough for home use and often unattractive for market purposes because of tendency to be greenish tinged. No other wax variety except Golden-Eyed Wax is so often green in color. Most like Golden-Eyed Wax, differing principally in seed, greater productiveness, and much larger, more perfect pods; also similar to Scarlet Flageolet Wax and Davis Wax.

Synonym.—Salzer's Earliest Wax.

Confusing names.—Imperial White-Seeded and Jones's Imperial Wax are very different varieties from Allan's Imperial Wax.

History.—Listed in 1891 by Vaughan Seed Company, and originated by John H. Allan Seed Company.

Illustrations.—Ripe seeds are shown on Plate III, 3; snap pods on Plate VI, 4; cross sections of snap pods are similar to Detroit Wax (Pl. V, 16), differing principally in larger size and flatter shape.

BISMARCK BLACK WAX.

Listed by 5 seedsmen. Seeds tested: Buist, 1905; Keeney, 1904, 1905; Thorburn, 1903.

Description.—Plant medium in size, erect, without runners, somewhat thick stemmed, green throughout except generally slightly purple tinged in places on branches and flower stalk, especially at their nodes, early-intermediate in season, of moderate bearing period, heavily to moderately productive. Leaf medium in size, medium green in color. Flowers pink. Snap pods uniform in size, long to medium in length, round, moderately curved, medium yellow, brittle, stringy, of inappreciable fiber, of fair quality, fairly free from anthracnose for a wax variety. Point of pod long and slightly curved or straight. Green shell pods rarely appreciably colored, full on outside between seeds, about 5⅞ inches long, and usually containing 6 seeds crowded in pod. Dry pods fairly easy to thrash. Dry seeds medium in size, medium in length, roundish through cross section, rounded or truncate at ends, straight at eye, solid black in color.

Comparison.—Where quality is not important this little known and planted variety is the best of the round wax-podded beans for market gardening, but for home use or where quality is essential it is too stringy and tough podded to be generally recommended. Its superior qualities are reliability, hardiness, freedom from disease, and beautiful even color and shape. In these respects it is superior to German Black Wax and fully equal to such flat-podded sorts as Currie's Rustproof and Horticultural Wax.

Pods are more like German Black Wax than any other, differing principally in stringiness, toughness, greater size, longer pod point, and very even curvature at middle of pod, while vine is of about same habit as Davis Wax.

History.—Introduced in 1890 by Robert Buist Seed Company, who state the variety came from Germany.

Illustrations.—Snap pods are shown on Plate VII, 1; cross sections of snap pods are similar to Refugee (Pl. V, 12).

BLACK-EYED WAX.

Listed by 7 seedsmen. Seeds tested: Portland, 1906.

Description.—Plant large-medium, very erect, somewhat thick stemmed, without runners, wholly green, early, of short bearing period, moderately productive. Leaf medium in size, medium green in color. Flowers white. Snap pods uniform in size, of medium length, slightly curved, oval through cross section, deep yellow in color, brittle, stringless, without fiber, of good quality, somewhat subject to anthracnose. Green shell pods borne mostly above foliage, never splashed or colored, full on outside between seeds, about 4¾ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods somewhat hard to thrash. Dry seeds medium in size and length, roundish oval through cross section, rounded or truncate at ends, generally full at eye, white with black area around eye and one end covering one-sixth of bean.

Comparison.—Very common fifteen years ago, but now almost gone out of cultivation. Excellent for home or market and one of the best for early planting. Except for being a few days earlier in season, the variety is of same usefulness as Golden Wax and differs from it principally in color of seed, and shorter, more curved pod, longer pod point, and larger, more open vine.

History.—Introduced in 1887 by Peter Henderson & Co. and W. Atlee Burpee & Co.

Illustrations.—Cross sections of snap pods are similar to Keeney's Rustless Golden Wax (Pl. V, 18), differing principally in being somewhat smaller and proportionally thicker; snap pods resemble Golden Wax (Pl. VI, 2).

BURPEE'S KIDNEY WAX.

Listed by 1 seedsman. Seeds tested: Burpee, 1906.

Description.—Plant large, without runners, but generally drooping with fruit-laden branches and spreading when fully grown, thick stemmed, green throughout, intermediate in seasons, of moderate to long bearing season, heavily to moderately productive. Leaf large, medium green, wide across leaflets, of rough surface. Flowers white. Snap pods uniform in size, very long, straight, oval-flat through cross section, medium yellow in color, brittle, stringless, without fiber, of excellent quality, fairly free from anthracnose. Point of pod long and much curved. Green shell pods borne equally above and below foliage, never splashed or appreciably colored, full on outside between seeds, about 6 inches long, and usually containing 7 seeds very crowded in pod. Dry pods often hard to thrash. Dry seeds large-medium, proportionally long, oval through cross section, rounded or truncate at ends, straight or incurved at eye, white, with mottling of pansy violet and maize yellow around eye and ends, generally covering one-sixth of bean.

Comparison.—Owing to incomplete trials, it seems impossible to give, at this time, the real usefulness and value of this new and as yet little known or cultivated variety. It is apparently a very valuable acquisition and possibly a great improvement over any of its class. Its pods are straighter, more even, more handsome, and of as good quality as either Wardwell's Kidney Wax or Round Pod Kidney Wax, and claimed by the introducer to be as early as and far more productive than the former, while in shape the pods are not quite as flat but fully as long as those of the latter.

History.—Introduced in 1906 by W. Atlee Burpee & Co.

Illustrations.—Dry seeds are similar to Wardwell's Kidney Wax (Pl. II, 17), differing principally in being less colored around eye; cross sections of snap pod resemble Mohawk (Pl. V, 17); snap pods resemble Horticultural Wax (Pl. VI, 3), differing principally in being longer.

BURPEE'S WHITE WAX.

Listed by 1 seedsman. Seeds tested: Burpee, 1905, 1906.

Description.—Plant large, of a dense, low, well-rounded habit, sometimes with heavy drooping branches, but never with real runners, very thick stemmed, wholly green, late, long in bearing, moderately to heavily productive. Leaf large, medium green, wide across leaflets, rough at surface. Flowers white. Snap pods uniform in size, long, straight, very flat, medium yellow, often tinged with green, very brittle, stringless, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod short and curved. Green shell pods borne mostly below foliage, considerably depressed on outside between seeds, about 5⅞ inches long, and usually containing 6 seeds fairly separated in pod. Dry pods generally easy to thrash. Dry seeds large-medium, proportionally short, oval through cross section, well rounded at ends, straight or rounded at eye, solid white except minute area of yellow around eye.

Comparison.—New and as yet little known or planted. General usefulness and value not fully established; at least some reports state the variety to be very unreliable in season, productiveness, hardiness, and uniformity in size of pods, and others that it is superior to Davis or Wardwell's Kidney Wax for either market or home use. Its late season and fine quality are generally undisputed, and also its handsome appearance and productiveness when conditions are exactly favorable for a good growth. Similar to the old White Wax formerly listed by seedsmen, but of present day sorts it is as much like Wardwell's Kidney Wax as any.

History.—Introduced in 1905 by W. Atlee Burpee & Co., and originated by N. B. Keeney & Son, of Leroy, N. Y.

Illustrations.—Dry seeds are shown on Plate IV, 17; snap pods resemble Wardwell's Kidney Wax (Pl. X, 3), differing principally in being straighter, thicker, wider, and with longer pod point; cross sections of snap pods resemble Detroit Wax (Pl. V, 16), differing principally in being larger, thicker, and wider.

CHALLENGE BLACK WAX.

Listed by 44 seedsmen. Seeds tested: Ferry, 1900, 1902, 1904, 1905; Rogers, 1904, 1906; Gregory, 1898; Thorburn, 1897, 1901, 1902.

Description.—Plant very small, erect, somewhat thick stemmed, without runners or spreading branches, green throughout except generally slightly purple tinged in places on branches and flower stalks, especially at their nodes, very early, very short in bearing period, generally lightly productive. Leaf medium in size, medium green in color. Flowers pink. Snap pods somewhat variable in size, of medium to short length, generally much curved, roundish oval through cross section, medium yellow, very brittle, stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod small-medium and either straight or slightly curved. Green shell pods borne mostly above foliage, never splashed or appreciably colored except sometimes a little purple at sutures near stem end, full between seed on outside of pod, about 4⅜ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods very hard to thrash. Dry seeds medium in size and length, roundish through cross section, rounded or truncate at ends, straight at eye, sliver from pod occasionally attached to eye, solid black in color.

Comparison.—A well-known standard variety though probably not one of the twelve most largely grown bush sorts. Being earlier than any other wax bean and probably earlier than any of the green-podded sorts, it often becomes very useful to market gardeners; but for home planting or for general use it not only lacks in productiveness and long bearing period but is also not nearly so reliable a cropper, so hardy, or so large and handsome podded as Prolific Black Wax, Pencil Pod Black Wax, and many others. In general usefulness and value, the variety is almost the same as Valentine Wax; but in appearance of vine and pod it is most like German Black Wax, differing principally in having much smaller pods and plants, in being much earlier in season, and less productive and shorter in bearing period.

History.—Introduced in 1891 by D. M. Ferry & Co. and said to have originated with Rogers Brothers, of Chaumont, N. Y., from a single plant found in a lot of beans imported from Germany.

Illustrations.—Snap pods and cross section are similar to Prolific Black Wax (Pl. VII, 4, and Pl. V, 8, respectively), differing principally in smaller size.

CRYSTAL WAX.

Listed by 18 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900, 1902, 1904–1906; Rogers, 1904; Wood, 1905.

Description.—Plant large-medium, low growing, very spreading in habit, of many runner-like branches lying loosely over ground, slender stemmed, green throughout, late, of moderate to long bearing period, moderately productive. Leaf small, medium green, wide across leaflets, of smooth surface. Flowers white. Snap pods somewhat variable in size, very short, curved, round or roundish rectangular through cross section, very deeply creasebacked, whitish or grayish green, brittle, stringy, of small fiber, of good quality, fairly free from anthracnose. Point of pod small-medium, straight or slightly curved. Green shell pods borne mostly well below foliage, generally more or less tinged with purple, never distinctly splashed, of very loose, flabby pod walls, about 3⅝ inches long, and usually containing 6 seeds well separated in pod. Dry pods extremely hard to thrash. Dry seeds very small, proportionally short, roundish oval through cross section, generally well rounded at ends, straight at eye, solid white.

Comparison.—Although known for a long time, this variety has always remained one of the lesser grown sorts. Its lack of popularity is due not only to its late season, spreading habit, and extremely small pods but also to its uneven and mixed character, nearly all stocks containing pods varying in shape from round to flat and plants very similar to or identical with Navy Pea. Of little practical value to gardeners but interesting to amateurs on account of peculiarly silvery or grayish white pods, no other variety except Golden Refugee having pods at all like it in color. The vine is similar in habit to Refugee and pods are somewhat the shape of Refugee Wax, though much shorter. Seeds so closely resemble Navy Pea that substitutes of cheaper seed are made by unscrupulous growers.

Synonyms.—Silver Wax, Cabbage Wax (of T. W. Wood & Sons), Silver Bean, Ice Bean.

History.—First listed by seedsmen in this country about 1886.

Illustrations.—Seeds are shown on Plate IV, 3; cross section of snap pod on Plate V, 7; snap pods are similar in shape to Yankee Winter (Pl. X, 4), differing principally in being much smaller and less rectangular through cross section; leaf is similar to Snowflake (Pl. XXIII, 5).

CURRIE'S RUSTPROOF WAX.

Listed by 95 seedsmen. Seeds tested: Currie, 1904, 1905; Ferry, 1900; Keeney, 1904, 1905; Philipps, 1903; Rogers, 1904, 1906; Sioux City, 1905; Thorburn, 1900, 1902; Wood, 1903; Young and Halstead, 1904.

Description.—Plant medium in size, very erect, somewhat thick stemmed, without runners or spreading branches, green throughout except generally slightly purplish tinged in places on branches and flower stalks, especially at their nodes, very early, short in bearing period, moderately to heavily productive. Leaf of medium size, medium green in color. Flowers pink. Snap pods very uniform in size, long, straight, flattish oval through cross section, light yellow, somewhat tough, very stringy, of much fiber, poor to medium in quality, somewhat subject to anthracnose. Point of pod medium in size and straight. Green shell pods borne mostly above foliage, never splashed or appreciably colored except for slight purplish color at stem ends, slightly depressed on outside between seeds, about 6 inches long, and usually containing 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size, proportionally long, oval through cross section, generally rounded at ends, straight at eye, solid black in color.

Comparison.—One of the five most largely grown wax sorts and in some sections planted to the exclusion of almost every other variety. Being early, productive, reliable, a fine shipper, and uniformly straight and handsome podded, it is a standard market gardener's sort in all parts of the country but is too tough and stringy for a good home variety. Of similar usefulness to Davis Wax, differing principally in color of seed and few days earlier season.

Synonyms.—Admiral Togo, California Black Wax, California Rustproof Wax, Currie's Black Wax, Eldorado Wax, Mill's Rustproof Wax.

History.—Introduced about 1885 by Currie Brothers, who write the variety came from a single plant found near Milwaukee in a field of Golden Wax.

Illustrations.—Ripe seeds are shown on Plate II, 27; snap pods on Plate VIII, 1, and cross section of snap pod on Plate V, 10.

DAVIS WAX.

Listed by 150 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900, 1904; Keeney, 1904-1906; May, 1897; Rogers, 1904, 1906; Thorburn, 1901, 1902.

Description.—Plant large-medium, very erect, somewhat thick stemmed, without runners, wholly green, early, of short bearing period, moderately productive. Leaf of medium size, medium green in color. Flowers white. Snap pods very uniform in size, very long, straight, flat, light yellow, tough, very stringy, of much fiber, of poor to medium quality, somewhat subject to anthracnose. Point of pod long, slightly curved. Green shell pods borne mostly above foliage, never colored or splashed, slightly depressed on outside between seeds, about 7 inches long, and usually containing 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds large-medium, slender, roundish through cross section, generally well rounded at ends, generally straight at eye, solid white, except minute area of yellow around eye.

Comparison.—One of the five most largely grown wax sorts and extensively planted in all parts of the country. Strictly a market gardener's variety and unsurpassed for shipping and uniformity in size and shape of pods, and, except for Hodson Wax, fully as handsome as any of the wax varieties. Especially useful because of white seeds, but too tough podded and stringy for home use. Once regarded as enormously productive and very disease resistant, but during the last few years much complaint has been heard of poor crops and diseased plants, its plantings for several years having fallen off greatly, especially in the South. Except for difference in color of seed, the variety is as much like Currie's Rustproof as any, differing principally in longer and flatter pods, larger vine, and a few days later season; also resembles Scarlet Flageolet Wax.

Synonyms.—Elgin White Wonder Wax, Prolific Everbearing Rustproof Wax, Tait's White Wax, Ventura Wonder Wax.

History.—Introduced in 1895 by D. M. Ferry & Co. and Wm. Henry Maule. Originated by Mr. Eugene Davis, of Grand Rapids, Mich.

Illustrations.—Ripe seeds are shown on Plate IV, 13; leaf on Plate XXIII, 8; snap pods and cross section of same resemble Currie's Rustproof Wax (Pl. VIII, 1, and Pl. V, 10, respectively), both differing principally in larger size and flatter shape.

DETROIT WAX.

Listed by 28 seedsmen. Seeds tested: Ferry, 1899, 1900, 1904, 1905; Thorburn, 1901, 1902.

Description.—Plant small, very erect, somewhat thick stemmed, wholly green, early, short in bearing period, lightly to moderately productive. Leaf medium in size, medium green in color, wide across leaflets, of smooth surface. Flowers white. Snap pods uniform in size, medium in length, straight, oval through cross section, often tinged with green, especially in poorly grown plants, tough, stringy, of moderate fiber, of medium quality, fairly free from anthracnose. Point of pod short-medium and straight. Green shell pods borne mostly above foliage, never splashed or colored, full on outside between seeds, about 5⅛ inches long, and usually containing 6 seeds crowded in pod. Dry pods fairly easy to thrash. Dry seeds medium in size, proportionally short, oval through cross section, rounded or truncate at ends, flat or rounded at eye, white with mottling of bluish black and maize-yellow around eye and ends, covering about one-fourth of bean.

Comparison.—Generally known but not extensively cultivated, at least not one of the twenty most largely planted sorts. Too stringy and tough podded for a good home variety and too short in bearing period and too unproductive for a good all-round sort, but a fairly good market garden variety for very early crops. Because a better shipper, a more certain cropper, more hardy, and more disease resistant, it is superior as a market gardening variety to Improved Golden Wax. Almost equal to Davis Wax and Currie's Rustproof Wax for market gardening. More like Improved Golden Wax than any other, differing principally in little larger vine, a few days later season, and flatter, larger, stringy pods of much fiber, but resembling it in compact, well-rounded habit and peculiarly smooth, widened, rather small leaflets.

History.—Introduced about 1885 by D. M. Ferry & Co.

Illustrations.—Ripe seeds are shown on Plate II, 6; cross section of snap pod on Plate V, 16; snap pods are similar in shape to Improved Golden Wax (Pl. VI, 1.)

DOUBLE-BARREL WAX.

Listed by 1 seedsman. Seeds tested: Landreth, 1905, 1906.

Description.—Plant large-medium in size, of a compact, bushy, well-rounded habit, without runners, rarely with drooping branches, thick stemmed, green throughout, late-intermediate in season, long to moderate in bearing period, moderately productive. Leaf large, medium green. Flowers pinkish white. Snap pods fairly uniform in size, long-medium, fairly straight, always broad through cross section, sometimes decidedly double barreled, often sharply constricted on outside between seeds, deep yellow in color, without greenish tingeing, extremely brittle, absolutely stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod long-medium, thick, fairly regular in shape, slightly curved. Green-shell pods borne mostly below foliage, depressed on outside between seeds, about 5¼ inches long, and usually containing 5 or 6 seeds very crowded in pod. Dry pods very hard to thrash. Dry seeds medium in size, proportionally short, roundish through cross section, generally well rounded at one end and larger and decidedly truncate at other, straight at eye, distinct line or ridge at back, sliver from pod occasionally attached to eye, solid brownish ocher in color except minute brown area around eye.

Comparison.—Little known and planted. Fully equal to Yosemite in quality and excellent for home gardening, but decidedly too tender, too variable in shape, and too poor a shipper for market use. Most like Maule's Butter Wax, differing principally in color of seed, greater productiveness, larger, straighter, more uniform pods, and more compact vines, and therefore generally to be regarded as a much better variety.

History.—Introduced in 1901 by D. Landreth Seed Company.

Illustrations.—Dry seeds are shown on Plate II, 4; snap pods resemble Yosemite Wax (Pl. VIII, 2), differing principally in being almost straight and much shorter, decidedly smaller, less double barreled, and with much shallower constrictions between seeds; cross sections of snap pods also resemble same variety (Pl. V, 21 and 22).

GERMAN BLACK WAX BUSH.

Listed by 109 seedsmen. Seeds tested: Henderson, 1902; Johnson & Stokes, 1905; Keeney, 1905; Rogers, 1906.

Description.—Plant medium in size, erect when young, generally borne down with fruit-laden branches when fully grown, without runners, thick stemmed, green throughout except generally slightly purplish tinged in places on branches and flower stalks, especially at their nodes, early in season, of moderate bearing period, heavily to moderately productive, somewhat subject to anthracnose. Leaf medium in size, medium green in color. Flowers pink. Snap pods uniform in size, medium in length, generally more or less scimiter curved, round, medium yellow in color, very brittle, stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne equally above and below foliage, never appreciably colored, except for slight streaks of red along sutures at stem end, full on outside between seeds, about $4\frac{5}{8}$ inches long, and usually containing 6 seeds very crowded in pod. Dry pods exceedingly hard to thrash. Dry seeds medium in size and length, roundish through cross section, rounded or truncate at ends, straight at eye, sliver from pod occasionally attached to eye, solid black in color.

Comparison.—One of the 5 most largely grown wax-podded varieties. Excellent for home or market. Especially useful because of high quality and general productiveness and reliability, not however as handsome and not usually as productive and reliable as Pencil Pod Black Wax nor so universally liked by experienced gardeners as Prolific Black Wax, while Golden Crown Wax is also considered superior by some because of its solid white seeds. Most like Prolific Black Wax, differing principally in somewhat later season, deeper yellow color, less tendency to reddish color at stem end of pod, larger leaves, and much coarser vines.

Synonyms.—Fuller's Black Wax, Fuller's Ringleader Black Wax, Griswold's Everbearing Wax, Salzer's Round-Podded Wax.

History.—First grown in this country about 1865, and probably the first of the wax-podded bush varieties.

Illustrations.—Snap pods and cross section are similar to Prolific Black Wax (Pl. VII, 4, and Pl. V, 8).

GOLDEN BEAUTY WAX.

Listed by 1 seedsman. Seeds tested: Darch & Hunter, 1902, 1904–1906.

Description.—Plant medium in size, of compact, well-rounded, bushlike habit, without runners or spreading branches, rather thick stemmed, green throughout, late-intermediate in season, of moderate bearing period, fairly productive. Leaf small-medium, of a peculiarly grayish green color, wide across leaflets, unusually flat, of remarkably smooth surface. Flowers white. Snap pods very uniform in size, short-medium, moderately curved, oval-round through cross section, medium yellow in color, brittle, stringless, without fiber, of good quality, somewhat subject to anthracnose. Point of pod short-medium, decidedly curved. Green shell pods borne well above foliage, occasional branches remarkably high above plant, never splashed or colored, moderately depressed on outside between seeds, about 4¾ inches long, and usually containing 6 seeds crowded in pod. Dry pods sometimes hard to thrash. Dry seeds small, short, roundish oval through cross section, generally well rounded at ends, generally larger at one end than at other, rounded or full at eye, solid brownish ocher in color except minute brownish area around eye.

Comparison.—Little known and planted. A very handsome and excellent variety of same general usefulness as Golden Wax and more like it than any other. Worthy of extended trial, as in some conditions it proves superior to Golden Wax in hardiness and productiveness, and in the attractive, clear yellow color of its pods without the green tinge so often appearing in that variety

History.—Introduced about 1890 by the John H. Pearce Seed Company, now succeeded by Darch & Hunter.

Illustrations.—Cross section of snap pod resembles Keeney's Rustless Golden Wax (Pl. V, 18), differing principally in smaller and more oval shape; snap pods resemble Golden Wax (Pl. VI, 2), differing principally in shorter, more curved, not quite as flat pods and decidedly curved and somewhat longer pod point; leaf also resembles Golden Wax (Pl. XXIV, 2).

GOLDEN CROWN WAX.

Listed by 6 seedsmen. Seeds tested: Jones, 1904, 1905; Thorburn, 1901, 1902.

Description.—Plant medium in size, erect when young, generally borne down with fruit-laden branches when fully grown, without runners, thick stemmed, wholly green, early in season, of moderate bearing period, fairly productive. Leaf of medium size, medium green. Flowers white. Snap pods uniform in size, medium in length, generally more or less scimiter curved, round, medium yellow, very brittle, stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod medium in length and straight or slightly curved. Green shell pods borne equally above and below foliage, never colored or splashed, full on outside between seeds, about 4⅝ inches long, and usually containing 6 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds medium in size, somewhat slender, roundish through cross section, truncate or rounded at ends, almost straight at eye, sliver from pod occasionally attached to eye, solid white, except minute area of yellow around eye.

Comparison.—Little known and planted, but on account of perfectly white seeds and absolute freedom from fiber and string, it makes an excellent sort for home or market, no other variety except Jones's Stringless Wax possessing all of these qualities. Its dry seeds are readily salable for baking beans; its snap pods are straighter and more handsome than German Black Wax and Jones's Stringless but not equal in these respects to those of Maule's Nameless Wax of 1906 and Round Pod Kidney Wax. Next to Jones's Stringless Wax, it is perhaps as much like German Black Wax as any, differing principally in color of seed and straighter, better filled pods.

History.—Introduced in 1899 by the originator, A. N. Jones, of Leroy, N. Y., and said to be a cross between Yosemite Wax and Ivory Pod Wax.

Illustrations.—Dry seeds are shown on Plate IV, 12; snap pods and cross sections of same are similar to Prolific Black Wax, (Pl. VII, 4, and Pl. V, 8, respectively), differing principally in greater size and straightness, and lighter yellow color of pods.

GOLDEN-EYED WAX.

Listed by 67 seedsmen. Seeds tested: Buckbee, 1897; Burpee, 1901, 1905; Ferry, 1899, 1900; Keeney, 1906; Rawson, 1897; Rogers, 1904, 1906; Thorburn, 1901, 1902; Wood, 1897.

Description.—Plant medium in size, very erect, somewhat thick stemmed, without runners, wholly green, early, short in bearing period, moderately productive. Leaf medium in size, light green in color. Flowers white. Snap pods very uniform in size, long to medium, slightly curved, flat, light yellow, generally more or less greenish tinged, occasionally almost solid light green, tough, very stringy, of much fiber, poor to medium in quality, fairly free from anthracnose. Point of pod long and either straight or slightly curved. Green shell pods borne equally above and below foliage, never colored or splashed, slightly depressed between seeds, about 5½ inches long, and usually containing 6 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds medium in size, proportionally long, oval through cross section, rounded or truncate at ends, generally straight at eye, solid white in color except small area of brownish ocher around eye.

Comparison.—Well known but not one of the twenty most largely grown varieties of the country. Decidedly too stringy and tough podded for home use, and often unsuited for market because of green-tinged pods. As described under Allan's Imperial Wax, this variety is not as well suited for market as some others; but of the two varieties Allen's Imperial Wax is by far the better, being much more productive, larger podded, more vigorous in growth, and having differently colored seed.

Synonyms.—Bolgiano's Sunshine Bush Wax, Sunshine Bush Wax.

History.—Introduced in 1889 by the late Aaron Low, of Essex, Mass., and originated by a Mr. Bartlett of Oshawa, Ontario, Canada.

Illustrations.—Ripe seeds are shown on Plate III, 1; snap pods resemble Allan's Imperial Wax (Pl. VI, 4), differing principally in smaller size; cross sections of snap pods resemble Detroit Wax (Pl. V, 16), differing principally in flatter shape.

GOLDEN WAX.

Listed by 81 seedsmen, besides 90 listing Improved Golden Wax and 26 listing Rustproof Golden Wax. Seeds tested: Buckbee, 1897; Burpee, 1897; Henderson, 1901; Farquhar, 1901; Keeney, 1906; McClure, 1903; Rogers, 1904, 1906; Schlegel & Fottler, 1901.

Description.—Plant small, very erect, somewhat thick stemmed, without runners, wholly green, very early, short in bearing period, lightly to moderately productive. Leaf medium in size, medium green in color, wide across leaflets, of smooth surface. Flowers white. Snap pods uniform in size, medium in length, straight, oval through cross section, deep yellow in color, often tinged with green, especially in poorly grown plants, somewhat brittle, stringless, of slight fiber, of good quality, somewhat subject to anthracnose. Point of pod short and straight or slightly curved. Green shell pods borne mostly above foliage, never splashed or colored, full on outside between seeds, about 5 inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size and length, roundish oval through cross section, rounded or truncate at ends, flat or rounded at eye, white in color with mottling of dark violet and maize yellow around eye generally covering about one-half of bean.

Comparison.—A standard wax bean in all sections of the country, the plantings of the variety, together with those of Improved Golden Wax, being larger than those of any other single wax variety. A few days earlier than Improved Golden Wax, but according to Department reports not more subject to rust and anthracnose as sometimes claimed. Both varieties stand about equal as the best all-round and most reliable of the extra early wax sorts, both are suitable for either home or market, of nearly as good quality as the very best, generally fair shippers, and except for the greenish tinge, which sometimes appears under certain growing conditions, both are of handsome appearance, but for general crops both varieties are too short in season and much less productive than Keeney's Rustless Golden Wax or Pencil Pod Black Wax. Golden Wax differs from Improved Golden Wax principally in longer, narrower pods, smaller vine, and larger, lighter, mottled area around eye of dry seed.

Synonyms.—Ferry's Golden Wax, Isbell's Golden Butter, York State Wax.

History.—Introduced in 1876 by D. M. Ferry & Co. as Ferry's Golden Wax. Probably the same as the variety known about 1874 as York Dwarf Wax.

Illustrations.—Snap pods are shown on Plate VI, 2; a leaf is illustrated on Plate XXIV, 2; cross section of snap pod is similar to Keeney's Rustless Golden Wax (Pl. V, 18), differing principally in smaller and more nearly oval shape.

HENDERSON'S MARKET WAX.

Listed by 1 seedsman. Seeds tested: Henderson, 1902, 1904, 1905.

Description.—Plant large-medium, generally erect or occasionally spreading, somewhat thick stemmed, without runners, wholly green, early-intermediate in season, of moderate bearing period, heavily productive. Leaf of medium size, medium green. Flowers pinkish white. Snap pods uniform in size, long-medium, slightly curved, oval through cross section, medium yellow, somewhat brittle, very slightly stringy, of inappreciable fiber, medium in quality, fairly free from anthracnose. Point of pod medium in length and straight or slightly curved. Green shell pods borne equally above and below foliage, never colored or splashed, full on outside between seeds, about 6 inches long, and usually containing 6 or 7 seeds crowded in pod. Dry pods fairly easy to thrash. Dry seeds medium in size, proportionally short, roundish oval through cross section, truncate or rounded at ends, straight at eye, solid straw yellow in color, sometimes shading to copper yellow, always with minute brownish area around eye.

Comparison.—This little known and planted variety is an excellent all-round sort of same general usefulness and value as Wardwell's Kidney Wax. Its pods are slightly flatter, and distinctly straighter and longer in point than that variety, and though not so free from fiber, its plants are fully as productive and hardy, and possibly more certain croppers. Pods are less tough and stringy than Horticultural Wax, but similar in shape.

History.—Introduced in 1902 by Peter Henderson & Co., who write the seed came from Genesee County, N. Y.

Illustrations.—Dry seeds are shown on Plate II, 9; snap pods are similar to Horticultural Wax (Pl. VI, 3), differing principally in slightly more curved, narrower, and longer shape; cross sections of snap pods resemble Detroit Wax (Pl. V, 16).

HODSON WAX.

Listed by 8 seedsmen. Seeds tested: Harvey, 1902; Keeney, 1906; Young & Halstead, 1904, 1905.

Description.—Plant very large, without decided runners but with many outstretched branches lying loosely over the ground, thick-stemmed, wholly green, very late, long in bearing season, very heavily productive. Leaf of medium size, of very narrow and pointed leaflets, medium green. Flowers light pink. Snap pods uniform in size, very long, almost straight, flat, medium yellow, very tough, very stringy, of much fiber, poor to medium in quality, unusually free from anthracnose. Point of pod long and straight or slightly curved. Green shell pods borne mostly below foliage, never colored nor splashed, moderately depressed on outside between seeds, about 7½ inches long, and usually containing 6 to 8 seeds crowded in pod. Dry pods easy to thrash. Dry seeds large-medium, slender, roundish oval through cross section, generally well rounded at ends, slightly incurved at eye, purplish red freely splashed with pale buff.

Comparison.—New and as yet little known or cultivated but meeting with great favor in many sections of the country, especially in the South, where it has uniformly proved to be the best and most reliable late wax sort for market gardeners, far surpassing all others in productiveness, hardiness, and large, handsome pods. In the extreme North its season is too late for the variety to be generally grown, while for home use its pods are decidedly too tough, even tougher, if anything, than Davis Wax. Except for color, its pods are same as Hodson Green Pod. Of the wax sorts its pods are most like Davis Wax, differing principally in their larger size and the mottled color of the seeds which resemble those of Red Valentine, but larger and longer.

History.—Introduced in 1902 by Harvey Seed Company, who state the variety came from a customer in whose possession it had been for a number of years.

Illustrations.—Dry seeds are shown on Plate I, 19; snap pods and cross section of same resemble in shape those of Currie's Rustproof (Pl. VIII, 1, and Pl. V, 10, respectively), both differing principally in much larger size and flatter shape.

HORTICULTURAL WAX.

Listed by 2 seedsmen. Seeds tested: Keeney, 1906; Rawson, 1903, 1905.

Description.—Plant large-medium in size, fairly erect, somewhat thick stemmed, without runners, green throughout, early-intermediate in season, of moderate bearing period, fairly to heavily productive. Leaf medium in size, medium green in color. Flowers pinkish white. Snap pods uniform in size, long-medium, straight, flattish oval through cross section, rich yellow, tough, stringy, of much fiber, poor to medium in quality, unusually free from anthracnose. Point of pod long and slightly curved or straight. Green shell pods borne equally above and below foliage, never colored or splashed, full on outside between seeds, about 5⅝ inches long, and usually containing 6 or 7 seeds crowded in pod. Dry pods easy to thrash. Dry seeds large-medium, proportionally short, oval through cross section, truncate or rounded at ends, straight at eye, purplish red, freely streaked with pale buff.

Comparison.—Although little known or planted, this is a much better variety for most purposes than similar sorts, such as Allan's Imperial Wax, Golden-Eyed Wax, and Detroit Wax. It surpasses all of these in uniformly handsome appearance, reliability, and productiveness, and, next to Allan's Imperial Wax, is the largest in size of pods. Strictly a market gardeners' bean, for which purpose it competes with Currie's Rustproof and Davis Wax, but pods are too tough for home use. Most like Allan's Imperial Wax, differing principally in color of seed and smaller, straighter, narrower pods, which are very similar to those of Henderson's Market Wax, while the seed is of almost same color as Red Valentine, but shorter and rounder in shape.

History.—Introduced in 1896 by W. W. Rawson & Co., who state it is a cross between Golden Wax and Dwarf Horticultural.

Illustrations.—Dry seeds are shown on Plate I, 16; snap pods on Plate VI, 3; cross sections of snap pods are similar to Detroit Wax (Pl. V, 16).

IMPROVED GOLDEN WAX.

Listed by 90 seedsmen, besides 81 listing Golden Wax, and 23 listing Rustproof Golden Wax. Seeds tested: Rogers, 1904, 1906; Thorburn, 1901, 1902.

Description.—Plant small, very erect, somewhat thick stemmed, without runners, wholly green, very early, short in bearing period, lightly to moderately productive. Leaf medium in size, medium green in color, wide across leaflets, smooth at surface. Flowers white. Snap pods uniform in size, medium in length, straight, oval through cross section, deep yellow in color, often tinged with green, especially in poorly grown plants, somewhat brittle, stringless, of little fiber, of good quality, somewhat subject to anthracnose. Point of pod short and straight. Green shell pods borne mostly above foliage, never splashed or colored, full between seeds on outside of pod, about

4½ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size, proportionally short, roundish oval through cross section, generally rounded at ends, slightly larger at one end than at other, rounded or full at eye, white with mottling of pansy violet and maize yellow around eye and ends, covering about one-fourth of seed.

Comparison.—General usefulness and value same as described for Golden Wax and, although exchanges of varieties can be made without objection, the two stocks should never be mixed if an even and satisfactory growth is to be obtained. After Golden Wax this variety is most like Detroit Wax, differing principally in being stringless, without fiber, less flat podded, and earlier in season.

Synonyms.—Golden Jersey Wax, Green's Golden German Wax, Grenell's Improved Golden Wax, Grenell's Rustproof Wax, New York Golden Wax, Rustproof Golden Wax.

History.—Introduced about 1884. Originated by W. H. Grenell, of Pierrepont Manor, N. Y.

Illustrations.—Ripe seeds are shown on Plate II, 5; snap pods on Plate VI, 1; cross section of snap pods are similar to Keeney's Rustless Golden Wax (Pl. V, 18), differing principally in smaller size and more oval shape.

JONES'S STRINGLESS WAX.

Listed by 38 seedsmen. Seeds tested: Breck, 1905; Ferry, 1903; Jones, 1903, 1904; Thorburn, 1901, 1902.

Description.—Plant medium in size, erect when young, generally borne down with fruit-laden branches when fully mature, without runners, thick stemmed, wholly green, early in season, moderate in bearing period, fairly productive. Leaf of medium size, medium green in color. Flowers white. Snap pods of uniform size, medium in length, generally more or less scimiter curved, round, medium yellow, very brittle, stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne equally above and below foliage, never colored or splashed, full on outside between seeds, about 4⅝ inches long, and usually containing 5 or 6 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds medium in size, somewhat slender, roundish through cross section, truncate or rounded at ends, almost straight at eye, sliver from pod occasionally attached to eye, solid white, except minute area of yellow around eye.

Comparison.—Little known or cultivated. Of same general usefulness and value as Jones's Stringless Wax and sometimes hardly distinguishable from it, but careful tests have shown that Golden Crown is straighter and larger podded, somewhat more productive, more even and pure, and generally the better variety of the two. Also similar to German Black Wax, differing principally in seed and lighter yellow pods which have no tendency toward reddish tingeing at stem end of green shell pods.

Synonyms.—Hammond's Luscious Stringless Wax, Imperial White-Seeded Wax.

History.—Introduced in 1898 by several American seedsmen. Originated by A. N. Jones, of Leroy, N. Y., who states the variety was obtained by crossing Yosemite Wax with a white seedling of Ivory Pod Wax.

Illustrations.—Dry seeds are very similar to those of Golden Crown Wax (Pl. IV, 12), differing principally in being smaller than illustrations; snap pods and cross section of same are similar to Prolific Black Wax (Pl. VII, 4, and Pl. V, 8, respectively).

KEENEY'S RUSTLESS GOLDEN WAX.

Listed by 35 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900; Keeney, 1904–1906; Livingston, 1905; Thorburn, 1901, 1902.

Description.—Plant large, very spreading, with many long, drooping, almost runner-like branches lying loosely over ground, slender stemmed, green throughout, intermediate in season, very long in bearing period, heavily productive. Leaf small, grayish green in color, very smooth, generally short in length of petiole. Flowers white. Snap pods somewhat variable in size, medium in length, straight, oval-flat through cross section, medium yellow, very brittle, stringless, of inappreciable fiber, of good quality, unusually free from anthracnose. Point of pod short-medium, and either straight or slightly curved. Green shell pods generally borne well below foliage, never colored or splashed, full on outside between seeds, about 5⅝ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods easy to thrash. Dry seeds medium in size and length, roundish oval through cross section, rounded or truncate at ends, flat or rounded at eye, white in color, with mottling of dark violet and maize yellow around eye generally covering about one-half of bean.

Comparison.—Generally known among seedsmen but not extensively cultivated by gardeners. Although bearing uniformly handsome pods, and being more disease resistant, hardier, and more productive than any other wax bean of good quality, this variety has failed to become popular only because of its runner-like habit. In the young plants this peculiarity is almost as pronounced as in pole beans, but it ceases to develop after the plant sets pods and never becomes a serious obstacle to cultivation, while pods are fully as free from dirt and as well removed from the wet ground as most of the more erect sorts. Habit of vines similar to Refugee, and pods resemble Golden Wax more than any other, differing principally in being larger and wider. Seeds similar to Golden Wax, differing principally in larger size and flatter shape. Leaves quite different from other varieties and characterized by peculiarly smooth surface, grayish green color, and small size.

History.—Introduced in 1895 by several American seedsmen. Originated by N. B. Keeney & Son, of Leroy, N. Y., by whom it is described as a sport from Golden Wax.

Illustrations.—Cross section of a snap pod is shown on Plate V, 18; leaf on Plate XXIII, 1; snap pods resemble Golden Wax (Pl. VI, 2).

LEOPARD WAX.

Listed by 6 seedsmen. Seeds tested: Leonard, 1905, 1906.

Description.—Plant large-medium, very bushy and dense when young, generally burdened with fruit-laden branches and spreading when fully grown, very thick stemmed, green throughout, late-intermediate in season, of moderate to long bearing period, heavily to moderately productive. Leaf large, very dark green, of rough surface. Flowers light pink. Snap pods uniform in size, long-medium, moderately curved, flat, becoming roundish at green shell stage, light yellow in color, brittle, stringless, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod short and slightly curved. Green shell pods borne mostly below foliage, never splashed or appreciably colored, full on outside between seeds, about 5½ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods sometimes hard to thrash. Dry seeds large-medium, proportionally short, roundish oval through cross section, well rounded at ends, generally larger at one end than at other, rounded or full at eye, violet or bluish black in color except small area of white along back and one end.

Comparison.—Little known or planted. As Department trials of this variety were incomplete it is not possible to give its general usefulness and value at this time, only to state that it appears to be of same class as Burpee's White Wax and more like that variety than any other. In shape of pod it resembles a large, wide, immensely thick, Golden Wax.

History.—Introduced in 1905 by S. F. Leonard, who writes the seed came from a customer in Indiana.

Illustrations.—Seeds are shown on Plate II, 7; cross sections of snap pods resemble Keeney's Rustless Golden Wax (Pl. V, 18), differing principally in larger size; snap pods resemble Golden Wax (Pl. VI, 2), differing principally in being more curved and much larger in thickness and width.

LIVINGSTON'S HARDY WAX.

Listed by 1 seedsman. Seeds tested: Livingston, 1906.

Description.—Plant large, without runners, but generally drooping with fruit-laden branches and spreading when fully grown, thick stemmed, green throughout, intermediate in season, of moderate to long bearing period, heavily to moderately productive. Leaf large, medium green, wide across leaflets, and of rough surface. Flowers light pink. Snap pods somewhat variable in size, very long, generally decidedly scimiter curved, round, deeply creasebacked, medium yellow, extremely brittle, absolutely stringless, wholly without fiber, of excellent quality, fairly free from anthracnose. Point of pod long, very curved, often irregular in shape. Green shell pods borne equally above and below foliage, never splashed or appreciably colored, full on outside between seeds, about 6 inches long, and usually containing 7 seeds very crowded in pod. Dry pods very hard to thrash. Dry seeds large-medium in size, proportionally long, roundish through cross section, truncate or rounded at ends, straight at eye, sliver from pod occasionally attached to eye, chocolate brown freely mottled and splashed with maize yellow.

Comparison.—New and as yet little known or cultivated. Same usefulness and value as Pencil Pod Black Wax and Round Pod Kidney Wax, differing from them in no important particular except color of seed.

History.—Introduced in 1906 by Livingston Seed Company, and originated by N. B. Keeney & Son, of Leroy, N. Y.

Illustrations.—Dry seeds are about the shape of Round Pod Kidney Wax (Pl. III, 9); cross section of snap pods resemble Prolific Black Wax (Pl. V, 8), differing principally in much larger size; snap pods are about same in shape and size as Pencil Pod Black Wax (Pl. VIII, 3).

MAULE'S BUTTER WAX.

Listed by 6 seedsmen. Seeds tested: Keeney, 1904.

Description.—Plant medium in size, somewhat spreading, generally with long, heavy, drooping branches, without real runners, thick stemmed, green throughout, late-intermediate in season, moderate in bearing period, lightly to moderately productive. Leaf large, medium green. Flowers white. Snap pods somewhat variable in size, medium in length, generally decidedly scimiter curved, always broad, decidedly double barreled through cross section, sharply constricted on outside between seeds, appearing as if drawn tight by a thread and separated in sections, deep yellow in color, extremely brittle, absolutely stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod short, very thick, generally irregular in shape, slightly curved. Green shell pods borne mostly below foliage, depressed on outside between seeds, about 5 inches long, and usually containing 5 seeds very crowded in pod. Dry pods very hard to thrash. Dry seeds medium in size, proportionally short, roundish through cross section, generally well rounded at ends, straight at eye, white, except small mottled area of pansy violet and maize yellow around eye.

Comparison.—Little known or planted. Decidedly too tender for shipping and too variable in shape and size of pods to make a good appearance on the market, but excellent for home use or where tenderness, fleshiness, and the best quality are the desirable points. Resembles Double Barrel Wax, but much superior to it in length, straightness, uniformity of pods, and in hardiness and productiveness of plant, differing also in color of seed, in less perfect pod point, and deeper depressions between seeds. After this variety it most resembles Yosemite Wax.

History.—Introduced in 1889 by Wm. Henry Maule, who states the variety originated with N. B. Keeney & Son, of Leroy, N. Y.

Illustrations.—Dry seeds are shown on Plate II, 18; cross section of snap pod on Plate V, 24; while snap pods resemble Yosemite Wax (Pl. VIII, 2), differing principally in seed and smaller size of pods.

MAULE'S NAMELESS WAX OF 1906.

Listed by 1 seedsman. Seeds tested: Rogers, 1905.

Description.—Plant large-medium, very erect when young, generally spreading and drooping with fruit-laden branches when old, without runners, wholly green, early, of moderate to long bearing period, heavily to moderately productive. Leaf large, medium green. Flowers white. Snap pods very uniform in size, long to medium, very straight, round, medium yellow, extremely brittle, absolutely stringless, without fiber, of excellent quality, fairly free from anthracnose. Point of pod long and straight. Green shell pods borne equally above and below foliage, never colored or splashed, full on outside between seeds, about 5½ inches long, and usually containing 6 seeds crowded in pod. Dry pods hard to thrash. Dry seeds medium in size and length, roundish through cross section, truncate or rounded at ends, generally straight at eye, white in color, with golden bronze around eye covering about one-sixth of seed.

Comparison.—New and as yet little known or planted. Evidently one of the best of the newer sorts and possibly the most handsome and best general-purpose wax-podded bean; at least in Department trials, its pods were straighter, more uniform in color and size, and more handsome than any other wax sort and fully as productive, early, and hardy as German Black Wax and Round Pod Kidney Wax. Excellent for either home or market. More like German Black Wax than any other, differing principally in color of seed and longer, straighter, better filled pods.

History.—Introduced in 1906 by Wm. Henry Maule and originated by Rogers Brothers, of Chaumont, N. Y.

Illustrations.—Dry seeds are similar to Allan's Imperial Wax (Pl. III, 3), differing principally in being smaller and round instead of flat; snap pods and cross section of same are similar to Prolific Black Wax (Pl. VII, 4, and Pl. V, 8, respectively), differing principally in larger size, and very straight pod and pod point.

MONARCH WAX.

Listed by 1 seedsman. Seeds tested: Darch & Hunter, 1904, 1906.

Description.—Plant medium in size, erect, without runners or spreading branches, somewhat thick stemmed, wholly green, late-intermediate in season, of moderate bearing period, moderately productive. Leaf medium in size, medium green in color. Flowers white. Snap pods uniform in size, long-medium, straight, round, depressed on outside between seeds, medium yellow, brittle, stringless, without fiber, of good quality, somewhat subject to anthracnose. Point of pod short-medium, straight, and thick. Green shell pods borne equally above and below foliage, never splashed or colored, very deeply depressed on outside between seeds, about 5⅜ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods generally easy to thrash. Dry seeds large-medium, medium in length, flattish oval through cross section, well rounded at ends, straight at eye, solid white except small narrow strip of pansy violet at eye.

Comparison.—Little known or planted. As trials of this variety have not been complete, it is not possible at this time to give its general usefulness and value, only to state that it appears to be of same class as German Black Wax, differing principally in color of seeds, in much later season, and with pods very deeply and peculiarly depressed on outside between seeds.

History.—Introduced by Darch & Hunter in 1902.

Illustrations.—Dry seeds are shown on Plate II, 19; cross sections of snap pods resemble Prolific Black Wax (Pl. V, 8), differing principally in larger size; snap pods also resemble Prolific Black Wax (Pl. VII, 4), differing principally in being much larger through cross section, straight in shape, of much shorter, thicker pod point, and more depressed between seeds; green shell pods, however, are very different from above variety or any other here illustrated, the characteristic deep depressions between seeds being at this stage even more marked than in Round Yellow Six Weeks.

PENCIL POD BLACK WAX.

Listed by 46 seedsmen. Seeds tested: Burpee, 1902; Keeney, 1904–1906; Thorburn, 1901, 1902.

Description.—Plant large, without runners, generally drooping with fruit-laden branches and spreading when fully grown, thick stemmed, green throughout except generally slightly purplish tinged in places on branches and flower stalk, especially at their nodes; intermediate in season, of long to moderate bearing period, heavily to moderately productive. Leaf large, medium green, wide across leaflets, and of rough surface. Flowers pink. Snap pods somewhat variable in size, very long, frequently decidedly scimiter curved, round, deeply creasebacked, medium yellow, extremely brittle, absolutely stringless, absolutely without fiber, of excellent quality, fairly free from anthracnose. Point of pod long, very curved, often irregular in shape. Green shell pods borne equally above and below foliage, never splashed or appreciably colored, full on outside between seeds, about 6 inches long, and usually containing 7 seeds very crowded in pod. Dry pods very hard to thrash. Dry seeds large-medium in size, proportionally long, roundish through cross section, truncate or rounded at ends, straight at eye, sliver from pod occasionally attached to eye, solid black in color.

Comparison.—Extensively planted but perhaps not included among the twenty most largely grown bush varieties. Chiefly on account of its productiveness, high quality, and extremely long, handsome pods, this variety has been classed by some as not only the best wax variety for home use, but also the best all-round wax bean and an excellent sort for market gardening. All of these claims are probably true for some locations and the variety is undoubtedly one of the best wax beans for home use and for market gardening where the highest quality is desired, but as regards uniformity in size and shape of pods, straightness, and general attractiveness, the variety is generally surpassed by Maule's Nameless Wax of 1906, while Keeney's Rustless Golden Wax and Golden Crown Wax both surpass it in other qualities. For shipping and general market gardening this variety is not, however, nearly so desirable as some of the more uniformly shaped, hardier, tougher-podded, more productive sorts, such as Hodson Wax and Bismarck Black Wax. In appearance and general usefulness and value, this variety is about the same as Round Pod Kidney Wax. After this variety it is perhaps next most like German Black Wax, differing principally in decidedly longer, straighter pods, later season, greater productiveness, and much larger vine.

Synonyms.—Golden Scimiter Wax, Salzer's Giant Stringless Wax.

Confusing name.—Livingston's Yellow Pencil Pod Wax, a very different type of bean.

History.—Introduced in 1900 by Johnson & Stokes. Originated by N. B. Keeney & Son, of Leroy, N. Y.

Illustrations.—Dry seeds are shown on Plate II, 25; snap pods on Plate VIII, 3; while cross sections of snap pods are similar to Burpee's Stringless Green Pod (Pl. V, 13).

PROLIFIC BLACK WAX.

Listed by 72 seedsmen. Seeds tested: Keeney, 1904; Thorburn, 1901, 1902.

Description.—Plant medium in size, generally more or less spreading, sometimes with long outstretched branches, never with real runners, slender stemmed, green throughout, except generally purplish tinged in places on branches and flower stalks, especially at nodes, early-intermediate in season, long to moderate in bearing period, heavily to moderately productive. Leaf small, medium green, smooth at surface. Flowers pink. Snap pods uniform in size, medium short, generally more or less scimiter curved, round, medium yellow in color, very brittle, stringless, without fiber, of excellent quality, somewhat subject to anthracnose. Point of pod medium in length and slightly curved. Green shell pods borne mostly below foliage, never colored except streaked with red along sutures at stem end, full on outside between seeds, about 4⅜ inches long, and usually containing 6 or 7 seeds very crowded in pod. Dry pods very hard to thrash. Dry seeds medium in size and length, roundish through cross section, rounded or truncate at ends, straight at eye, sliver from pod occasionally attached to eye, solid black in color.

Comparison.—One of the most largely grown wax-podded varieties. Excellent for either home or market and generally regarded by bean experts as more productive, hardier, more reliable, and generally superior to German Black Wax, with which variety it is often confounded, the two stocks being often interchanged and sold one for the other. Next to German Black Wax the variety is most like Golden Crown Wax, differing principally in color of seed, more slender, lighter yellow pods, and often in being reddish near stem end when fully grown.

Synonyms.—Cylinder Black Wax, Prolific German Black Wax, Improved Black Wax.

History.—Introduced in 1888 by several American seedsmen as Prolific German Black Wax. Variety originated from several plants selected by C. N. Keeney and W. W. Tracy, sr., in a field of German Black Wax in Genesee County, N. Y.

Illustrations.—Snap pods and a cross section of same are shown on Plate VII, 4, and Plate V, 8, respectively.

PURPLE FLAGEOLET WAX.

Listed by 3 seedsmen. Seeds tested: Keeney, 1903, 1905, 1906.

Description.—Plant large-medium, very erect, thick stemmed, without runners, green throughout except generally slightly purplish tinged in places on branches and flower stalks, especially at their nodes, intermediate in season, of moderate bearing period, moderately productive. Leaf of medium size, medium green in color. Flowers pink. Snap pods uniform in size, very long, curved, flat, deep yellow, often green tinged, tough, very stringy, of much fiber, of poor to medium quality, somewhat subject to anthracnose. Point of pod long and either straight or slightly curved. Green shell pods borne mostly above foliage, never splashed or appreciably colored, slightly depressed on outside between seeds, about 7⅜ inches long, and usually containing 7 seeds crowded in pod. Dry pods easy to thrash. Dry seeds large-medium, long, oval through cross section, rounded or truncate at ends, generally straight at eye, blackish purple, often tinged with brown.

Comparison.—Well known but not extensively planted. Same usefulness and value as described for Scarlet Flageolet Wax, and except for difference in color of seed same also in appearance of pod and plant.

Synonyms.—Perfection Wax, Violet Flageolet Wax.

History.—Type was first introduced in 1887 by W. Atlee Burpee & Co. as Burpee's Perfection Wax and later known also as Violet Flageolet Wax and Purple Flageolet Wax. Derived from the German variety listed about 1885 as Flageolet Wax.

Illustrations.—Snap pods may be described by reference to Currie's Rustproof Wax (Pl. VIII, 1), the chief difference being that pods are very much larger, flatter, and more curved than shown in illustrations of that variety, while surface is nearly as rough as that of Canadian Wonder (Pl. X, 2); cross sections of snap pods are similar to Detroit Wax (Pl. V, 16).

REFUGEE WAX.

Listed by 67 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900, 1903–1905; Henderson, 1901; Keeney, 1904, 1906; Rice, 1905, 1906; Rogers, 1904; Sioux, 1906; Thorburn, 1906.

Description of stringless type.—Plant large-medium, very spreading in habit, with many runner-like branches falling loosely over ground, slender stemmed, wholly green, intermediate-late in season, long in bearing period, heavily productive. Leaf small, light grayish green in color, very narrow across leaflets, and of very smooth surface. Flowers pink. Snap pods uniform in size, of medium length, slightly curved, round, light yellow in color, brittle, stringless, without fiber, of good quality, slightly subject to anthracnose. Point of pod medium in size, very much curved, almost hooklike in shape. Green shell pods borne mostly below foliage, generally sparingly splashed with faint purple, full on outside between seeds, about 4⅜ inches long, and usually containing 5 seeds crowded in pod. Dry pods somewhat hard to thrash. Dry seeds medium in size, slender, roundish through cross section, truncate or rounded at ends, straight at eye, bluish black, fairly splashed with pale buff.

Description of stringy type.—Same as above, except more heavily productive, moderately curved pod point, stringy, of inappreciable fiber, with green shell pods generally 5 inches long and usually containing 5 or 6 seeds.

Comparison of stringless type.—Well known and largely cultivated, but not one of the twelve most largely grown sorts. A good all-round variety suitable for home or market, succeeding well in all sections, though apparently doing better at the North than at the South. Considerably later than most wax sorts and except Keeney's Rustless Golden Wax quite unlike any wax bean in habit of vine. Variety is given its name because of similarity in seed and vine to the green-podded Refugee variety. Pods more like Prolific Black Wax than any other, differing principally in color of seed and in more slender, faintly splashed pods with curved or hooklike pod point.

Comparison of stringy type.—Although not so extensively grown or of quite as good quality, this strain is nevertheless decidedly more hardy, productive, vigorous, larger podded, and better suited for market than the stringless type described above, but because of stringiness it is not always as well liked for home use. The two types are sometimes mixed by seedsmen, thereby producing such unevenness in size that the stronger growing plants of the stringy type often crowd out the weaker growing plants of the stringless type.

Synonyms of stringless type.—Bolgiano's Wax, Keeney's Refugee Wax, Livingston's Pencil Pod Wax, Profusion Wax, Thorburn's Refugee Wax.

Synonyms of stringy type.—Epicure Wax, Ferry's Refugee Wax.

History.—The first type of this bean, which was introduced in 1890 by J. M. Thorburn & Co. as Thorburn's Refugee Wax, is said to have been derived from Extra Early Refugee. The present stringless type, which is now used not only by J. M. Thorburn & Co., but also by most other seedsmen, was a selection from the old Thorburn stock made by N. B. Keeney & Son soon after the introduction of Thorburn's Refugee Wax. Most stocks of the present stringy type are derived from a selection made by D. M. Ferry & Co. from the old stringy type of J. M. Thorburn & Co.

Illustrations.—A leaf of the stringless type is shown on Plate XXIII, 4. The leaf of stringy type differs in being very slightly larger and not quite so narrow or pointed. Snap pods of the stringless type resemble Prolific Black Wax (Pl. VII, 4), differing principally in color of seed, and faintly splashed, more slender pods with decidedly hooklike pod points. The snap pods of the stringy type differ from those of stringless type principally in being larger, somewhat straighter, and without such decidedly curved pod points. Cross sections of both types are similar to Prolific Black Wax (Pl. V, 8).

ROGERS'S LIMA WAX.

Listed by 7 seedsmen. Seeds tested: J. C. McCullough, 1905; Maule, 1900, 1902; Rogers, 1904, 1905.

Description.—Plant of medium size, very spreading with many runner-like branches, drooping or creeping loosely over the ground, somewhat slender stemmed, wholly green, very late, long in bearing period, lightly productive. Leaf small, very light green, wide across leaflets, very flat, of very smooth surface, and somewhat resembling Lima leaves. Flowers white. Snap pods somewhat variable in size, very short, straight, except sometimes bent to one side, flat, very much depressed on outside between seeds, medium yellow, sometimes tinged with green, somewhat tough, stringy, of moderate fiber, of fair quality, fairly free from anthracnose. Point of pod thick, short, much curved, and generally imperfect. Green shell pods borne uniformly below foliage and close to ground, never colored or splashed, of very flabby and much depressed pod walls, about 4½ inches long, and usually containing about 5 seeds very much separated in pod. Dry pods easy to thrash. Dry seeds small, short, roundish oval through cross section, invariably well rounded at ends, very rounded or full at eye, decidedly larger at one end than at other, generally regular in shape, sometimes bulging out in places near eye, solid white.

Comparison.—Although largely advertised at the time of its introduction, this variety is now dropped from most seed lists, as it is now generally conceded to be of little practical value. It has never been planted except in an experimental way, and even among amateurs will probably be little grown. Undesirable because so late in season, spreading in habit, and unproductive, and so small, imperfect, and unattractive in size and shape of pods. Of some interest because of peculiar Lima-like pods, which make fairly good snaps so far as quality is concerned, but are very unsatisfactory in other respects and especially unproductive for green shell or dry beans. Pods very different from any other variety. Vines somewhat Lima-like in their very smooth stiff leaves.

Synonym.—Lima Wax.

History.—Introduced in 1896 by several American seedsmen. Originated by Rogers Brothers, of Chaumont, N. Y.

Illustrations.—Dry seeds are shown on Plate IV, 5; cross section of snap pod on Plate V, 19; leaf on Plate XXIII, 3; while snap and green shell pods are quite different from any of the illustrations shown in this bulletin.

ROUND POD KIDNEY WAX.

Listed by 46 seedsmen. Seeds tested: Ferry, 1902; Johnson & Stokes, 1901; Keeney, 1904–1906.

Description.—Plant large, very erect when young, generally drooping, with fruit-laden branches and spreading in habit when fully grown, without runners, thick stemmed, green throughout, with branches of distinct yellowish green shade, intermediate in season, long to moderate in bearing period, moderately productive. Leaf large, medium green in color, wide across leaflets, and of rough surface. Flowers white. Snap pods somewhat variable in size, very long, frequently decidedly scimiter curved, round, deeply creasebacked, medium yellow, extremely brittle, absolutely stringless, entirely without fiber, of excellent quality, moderately free from anthracnose. Point of pod long, very curved, often irregular in shape. Green shell pods borne equally above and below foliage, never splashed or colored, full on outside between seeds, about 6 inches long, and usually containing 7 seeds very crowded in pod. Dry pods hard to thrash. Dry seeds large-medium, extremely slender and straight, roundish through cross section, rounded or truncate at ends, straight or slightly incurved at eye, solid white except small area of black around eye and one end.

Comparison.—Largely planted, but perhaps not included among the 20 most extensively grown bush beans. Excepting that its seeds have the superior quality of being almost white in color, this variety is very similar to Pencil Pod Black Wax and generally regarded as equally useful and valuable, though in our trials the growth of vine has not been as large, vigorous, or productive. Pods about same as those of Pencil Pod Black Wax.

Synonym.—Brittle Wax.

History.—Introduced in 1900 by Johnson & Stokes. Originated by N. B. Keeney & Son, of Leroy, N. Y.

Illustrations.—Dry seeds are illustrated on Plate III, 9; snap pods are similar to Pencil Pod Black Wax (Pl. VIII, 3) and cross section of snap pods to Burpee's Stringless Green Pod (Pl. V, 13).

SCARLET FLAGEOLET WAX.

Listed by 22 seedsmen. Seeds tested: Ferry, 1900; Johnson & Stokes, 1897.

Description.—Plant large-medium, very erect, thick stemmed, without runners, green throughout except generally slightly purplish tinged in places on branches and flower stalks, especially at their nodes, intermediate in season, of moderate bearing period, moderately productive. Leaf medium in size, medium green in color. Flowers pink. Snap pods uniform in size, very long, curved, flat, deep yellow, somewhat inclined to be greenish tinged, tough, very stringy, of much fiber, poor to medium in quality, somewhat subject to anthracnose. Point of pod long and either straight or slightly surved. Green shell pods borne mostly above foliage, never splashed or appreciably colored, slightly depressed on outside between seeds, about 7⅝ inches long, and usually containing 7 seeds crowded in pod. Dry pods easy to thrash. Dry seeds large medium, long, oval through cross section, rounded or truncate at ends, generally straight at eye, solid plum-violet in color.

Comparison.—Well known, but not extensively grown, although a great favorite in many places in the South. Decidedly too stringy and tough for home use and suitable only for market gardening. Except for Hodson Wax and Purple Flageolet Wax, its pods are larger than those of any other wax variety, and being of a coarse, rough surface and somewhat inclined to be greenish tinged its pods are not quite so handsome as Hodson Wax, nor are its plants so hardy, productive, and free from disease, although often more useful because of earliness. Differs from Purple Flageolet Wax only in color of seed; also resembles Davis Wax, differing principally in color of seed and in larger, longer, more greenish tinged pods.

Synonyms.—Crimson Flageolet Wax, Giant Dwarf Wax, King of Wax, Landreth's Scarlet Wax, Mammoth Red German Wax, Midsummer Wax, Red Flageolet Wax, Red German Wax, Rennie's Stringless Wax, Simmers's Early Giant Wax.

History.—Type was introduced in 1887 by D. Landreth Seed Company as Landreth's Scarlet Wax, but later became known also as Crimson Flageolet Wax, Red Flageolet Wax, and Scarlet Flageolet Wax. Derived from the German variety listed about 1885 as Flageolet Wax.

Illustrations.—Dry seeds are shown on Plate II, 26; snap pods may be described by reference to Currie's Rustproof Wax (Pl. VIII, 1), the chief difference being that pods are much larger, flatter, more curved, with surface nearly as coarse as Canadian Wonder (Pl. X, 2); cross section of snap pods are similar to Detroit Wax (Pl. V, 16).

SPECKLED WAX.

Listed by 1 seedsman. Seeds tested: Buckbee, 1905, 1906.

Description.—Plant large, erect, dense in habit when young, sometimes spreading when fully grown, always without runners, very thick stemmed, green throughout, very late, long in bearing period, heavily productive. Leaf large, dark green, rough at surface. Flowers pink. Snap pods uniform in size, long, straight, round, light yellow, somewhat tough, stringy, of slight fiber, fair in quality, fairly free from anthracnose. Point of pod long, straight, and slender. Green shell pods borne both above and below foliage, often lightly splashed with faint purple, quite depressed on outside between seeds, about 6 inches long, and usually containing 7 seeds very crowded in pod. Dry pods fairly easy to thrash. Dry seeds large-medium, long, roundish through cross section, rounded or truncate at ends, generally straight at eye, reddish buff in color, sparingly splashed with reddish purple.

Comparison.—Although catalogued as long ago as 1891, this variety has never been much grown, and is at present almost gone out of use. Its chief merits are straight, very handsome pods and immense crops under perfectly favorable conditions, but because crops are very late and often failures it has always remained unpopular. Pods as much like Bismarck Black Wax as any, differing principally in being splashed and very straight.

History.—Introduced in 1891 by W. C. Beckert as Beckert's Speckled Wax.

Illustrations.—Dry seeds are similar to the flat-podded type of Best of All (Pl. I, 18), the principal difference being larger size and more abundant splashing; snap pods and cross section of same resemble illustrations of Prolific Black Wax (Pl. VII, 4, and Pl. V, 8, respectively), differing principally in larger, straighter, and splashed color of pods.

VALENTINE WAX.

Listed by 43 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900; Rogers, 1904; Thorburn, 1901, 1902.

Description.—Plant very small, erect, somewhat slender stemmed, without runners or spreading branches, green throughout, very early, very short in bearing period, lightly productive. Leaf small, medium green. Flowers pinkish white. Snap pods fairly uniform in size, medium short, curved, roundish oval through cross section, medium yellow, brittle, stringy, of inappreciable fiber, of good quality, generally quite subject to anthracnose. Point of pod medium in length and either straight or slightly curved. Green shell pods borne mostly above foliage, never appreciably splashed or colored, full on outside between seeds, about 4½ inches long, and usually containing 6 seeds crowded in pod. Dry pods hard to thrash. Dry seeds medium in size, proportionally long, roundish through cross section, truncate or rounded at ends, straight at eye, generally irregular in shape, often twisted or bulged out in places, purplish red splashed with pale buff.

Comparison.—Generally advertised, but not now extensively grown, for although second in earliness among wax sorts it has been demonstrated during the last six years that the variety is decidedly lacking in hardiness, productiveness, reliability, and disease-resistant qualities, being even inferior in these respects to Challenge Black Wax, which variety it most resembles in appearance of pod and vine as well as in general usefulness and value. Pods somewhat larger, a little more slender, straighter, and lighter yellow in color, and vines much smaller and more bushy than Challenge Black Wax. Differs from Red Valentine principally in color, stringlessness, and smaller size of pods, in well-rounded bushy vine, and wide instead of narrow leaflets, while seeds of the two varieties are of about same size and color.

Synonym.—Miller's Early Golden Stringless Wax.

History.—Introduced in 1885 by J. M. Thorburn & Co., who write the bean originated with T. V. Maxon, of Jefferson County, N. Y., from a sport found in Red Valentine.

Illustrations.—Dry seeds are similar to Red Valentine (Pl. I, 13); snap pods and cross section of same are similar to Prolific Black Wax (Pl. VII, 4, and Pl. V, 8, respectively), differing principally in being smaller in size, less round in shape, lighter yellow in color, and with seed of different color.

WARDWELL'S KIDNEY WAX.

Listed by 165 seedsmen. Seeds tested: Buckbee, 1897; Buist, 1905; Burpee, 1901; Denison, 1903; Ferry, 1899, 1900; Keeney, 1904–1906; May, 1897; Morse, 1906; Rogers, 1904, 1906; Thorburn, 1901, 1902; Wood, 1897.

Description.—Plant large-medium, fairly erect, thick stemmed, without runners, wholly green, early-intermediate in season, long to moderate in bearing period, moderately productive. Leaf large, dark green, of slightly rough surface. Flowers white. Snap pods uniform in size, long, generally turned back at stem end, flat, medium yellow, somewhat brittle, stringless, of little fiber, of good quality, much subject to anthracnose. Point of pod short and very straight. Green shell pods borne equally above and below foliage, never colored or splashed, full on outside between seeds, about $5\frac{7}{8}$ inches long, and usually containing 5 or 6 seeds crowded in pod. Dry pods fairly easy to thrash. Dry seeds large-medium, proportionally long, oval through cross section, rounded or truncate at ends, flat or incurved at eye, white with mottling of pansy violet and maize yellow around eye and ends, generally covering about one-fourth of bean.

Comparison.—One of the three most largely grown wax varieties and though largely planted in all parts of the country and a good all-round sort which is as well adapted for home use as for market it is not generally as free from disease or as certain a cropper as Henderson's Market, Currie's Rustproof, or Horticultural Wax, but when conditions are just right it is one of the most showy and productive of all the wax beans. Peculiar for its very heavy growth, very small pod point, and for a portion of its pods bending backward at stem end. Most like Horticultural Wax and Henderson's Market Wax, but of the common wax varieties it most resembles Golden Wax, differing principally in seed, in much larger size, in peculiar curvature of pod, in exceedingly small pod point, in later season, and in larger growth of vine.

Synonym.—Milliken's Wax.

History.—Introduced about 1885 by several American seedsmen and originated by a Mr. Wardwell, of Jefferson County, N. Y.

Illustrations.—Dry seeds are shown on Plate II, 17; snap pods on Plate X, 3; while cross sections of snap pods are somewhat flatter and larger than Currie's Rustproof (Pl. V, 10).

YOSEMITE WAX.

Listed by 54 seedsmen. Seeds tested: Burpee, 1900, 1901; Henderson, 1905; Keeney, 1904; Thorburn, 1897, 1902.

Description.—Plant large, without runners, generally with many drooping or heavy spreading branches, thick stemmed, green throughout, late-intermediate in season, long in bearing period, moderately productive. Leaf large, light green, wide across leaflets, of rough surface. Flowers pink. Snap pods varying considerably in size, long, very scimiter curved, broad or double barreled through cross section so as to appear like two pods grown together, sharply constricted on outside between seeds, appearing as if drawn together by a thread and separated into sections, deeply crease-backed, deep yellow, extremely brittle, absolutely stringless, wholly without fiber, excellent in quality, fairly free from anthracnose. Point of pod very long, very thick, sometimes much curled and twisted. Green shell pods borne mostly below foliage, never appreciably splashed or colored, much depressed on outside between seeds, about 5 to 7 inches long, and usually containing 5 or 6 seeds well separated in pod. Dry pods very hard to thrash. Dry seeds large, proportionally medium in length, roundish through cross section, generally well rounded at ends, generally incurved at eye, irregular in shape, usually depressed at eye and either flattened or bulged out in other parts, solid black in color.

Comparison.—Generally advertised, but not much grown except in private gardens, being decidedly too tender podded for shipping and too variable in size, shape, and curvature of pod to make a good appearance on the market, besides generally a shy and uncertain bearer. Useful only as an exhibition sort or as a home variety, where extreme tenderness, fleshiness, and unquestionably fine quality is the principal object desired. Conceded everywhere to be the standard for quality in snap pods. Most like Maule's Butter Wax, differing principally in color of seeds and larger pods.

Synonym.—Hopkins' Everbearing Giant Wax.

History.—Introduced in 1889 by Peter Henderson & Co. and said to have originated from a single plant found in a field of White Wax Bush near Leroy, N. Y., by N. B Keeney & Son.

Illustrations.—Dry seeds are shown on Plate III, 26; cross sections of snap pods on Plate V, 21 and 22; and snap pods on Plate VIII, 2.

POLE GREEN-PODDED.

This class represents about the same range of color, shape, size, texture, and quality of seeds and pods as exists among varieties of the green-podded bush class. As in bush varieties many of the sorts are more useful for their dry seeds than for their snap pods.

ARLINGTON RED CRANBERRY POLE.

Listed by 3 seedsmen. Seeds tested: Farquhar, 1905.

Description.—Vine of large growth, of poor climbing habit when young, but doing well when once started, thick stemmed, much branched, green throughout, late-intermediate in season, long in bearing, heavily productive. Leaf small-medium in size, medium green in color. Flowers pink. Snap pods uniform in size, long-medium, fairly straight, often curved back at stem end, flat, light green, smooth, brittle, absolutely stringless, without fiber, of good quality, free from anthracnose. Point of pod short and very straight. Green shell pods often slightly purplish tinged along back and front, much depressed on outside between seeds, about 5$\frac{3}{8}$ inches long, and usually containing 7 or 8 seeds very crowded in pod. Dry pods easy to thrash. Dry seeds generally of medium size, but varying considerably, almost as wide as long, roundish through cross section, well rounded at ends, rounded or full at eye, solid plum-violet in color.

Comparison.—Little known or planted. Not equal for general use to Black Kentucky Wonder, Scotia, or Lazy Wife, but a fairly good all-round variety for snaps, green shell, or dry shell beans for either home or market, and where earliness is important more satisfactory than these varieties. Because entirely stringless, it makes a better snap bean for home use than Red Cranberry, which variety it resembles more than any other. Pods also similar to Warren Bush and Yellow Cranberry Bush.

History.—Listed by American seedsmen at least since 1885.

Illustrations.—Green shell pods are similar to Red Cranberry Pole (Pl. XVIII, 3).

BLACK KENTUCKY WONDER POLE.

Listed by 1 seedsman. Seeds tested: J. C. McCullough, 1905.

Description.—Vine of very large growth, of fair climbing habit, much branched, very thick stemmed, generally green throughout, sometimes reddish at stems, late-intermediate in season, of very long bearing period, very heavily productive. Leaf very large, medium green in color. Flowers pink. Snap pods very uniform in size, very long, fairly straight, much inclined to turn back at stem end, round-oval through cross section, deeply creasebacked, dark green in color, of somewhat coarse surface, brittle, stringy, of small fiber, of good quality, unusually free from anthracnose. Point of pod small and slightly curved. Green shell pods generally reddish tinged, sometimes solid deep purplish red, always with black lines along dorsal and ventral sutures, much depressed on outside between seeds, much wrinkled, about 7¼ inches long, and usually containing 8 to 10 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds of large-medium size, of medium length, flattish oval through cross section, generally well rounded at ends, straight at eye, solid black in color.

Comparison.—Little known and planted. For combination of productiveness, hardiness, and large pods this variety is unsurpassed by any other, the only sort approaching it in these respects being Scotia Pole. Excellent as snaps and very good as green or dry shell beans for home use, but because of purplish pods and black seeds it is unsuited as a green shell bean for market use. Most like White's Prolific, differing principally in color of seeds, season, productiveness, and larger, straighter, thicker pods. Differs from Kentucky Wonder not only in color of seed, but also in larger vine, later maturity, greater productiveness, and thicker pods.

History.—Listed by J. C. McCullough Seed Company at least since 1899 and apparently never listed by other seedsmen.

Illustrations.—Snap pods are shown on Plate XVII, 3; cross sections of snap pods are similar in shape to Kentucky Wonder Wax Pole (Pl. V, 26).

BROCKTON POLE.

Listed by 7 seedsmen. Seeds tested: Gregory, 1905.

Description.—Vine of large growth, of somewhat poor climbing habit when young, but doing well when once started, thick stemmed, moderately branched, wholly green, intermediate in season, of moderate to long bearing period, heavily productive. Leaf large-medium in size, dark green in color. Flowers pink. Snap pods fairly uniform in size, long, very straight, flat, dark green, of coarse surface, somewhat tough, stringy, of moderate fiber, of fair quality, fairly free from anthracnose. Point of pod extremely long, slender, straight. Green shell pods abundantly and brilliantly splashed with red, moderately depressed on outside between seed, about 8 inches long, and usually containing 5 or 6 seeds fairly separated in pod. Dry pods very easy to thrash. Dry seeds very large, long, oval through cross section, generally well rounded at ends, usually slightly incurved at eye, pale buff in color fairly splashed with dark reddish purple.

Comparison.—One of the lesser grown varieties and apparently cultivated only in New England, where the Horticultural class are the principal pole varieties grown for green shell beans. Ranks equally with Childs's Horticultural Pole as the best of the Horticultural class for strictly green shell beans. Of little value for snaps, but a more certain cropper than Worcester Mammoth, more productive than Extra Early Horticultural Pole, and excepting Extra Early Horticultural and Golden Carmine-Podded Horticultural Pole the most handsomely splashed of all pole varieties. Not as productive, however, as Lazy Wife or Arlington Red Cranberry Pole or as generally useful. More like Childs's Horticultural than any other pole variety. Pods closely resemble Improved Goddard Bush, differing principally in flatter shape, longer pod point, and with seeds more separated in pod.

History.—Introduced in 1885 by the former Aaron Low Seed Company, and originated by a market gardener of Brockton, Mass.

Illustrations.—Dry seeds are illustrated on Plate I, 27; green shell pods on Plate XIX, 2.

BURGER'S STRINGLESS POLE.

Listed by 2 seedsmen. Seeds tested: Burpee, 1906; Vaughan, 1905.

Description.—Vine of small growth, of good climbing habit, little branched, somewhat slender stemmed for a pole bean, open in habit, green throughout, very early, of short bearing period, moderately to lightly productive. Leaf medium in size, medium green in color. Flowers white. Snap pods uniform in size, very long, moderately curved, oval-round through cross section, creasebacked, dark green in color, of coarse surface, extremely brittle, stringless, without fiber, of very good quality, fairly free from anthracnose. Green shell pods never tinged or splashed except sometimes with black lines along dorsal and ventral sutures, much depressed on outside between seeds, much wrinkled, about 6¾ inches long and usually containing 8 or 9 seeds somewhat separated in pod. Dry pods hard to thrash. Dry seeds large-medium, medium in length, flattish oval through cross section, generally well rounded at ends, straight or incurved at eye, sliver from pod occasionally attached to eye, solid white.

Comparison.—New and as yet little known or cultivated. Ranks equally with Kentucky Wonder and White Creaseback as one of the best early varieties for snaps, but is sometimes claimed to be earlier, more productive, longer in bearing, and better in quality than either. Its absolute stringlessness certainly makes it superior in quality, and its white seed and solid dark green pods are also decided merits, but more experiments are necessary before stating whether it is superior in the other qualities claimed. Habit of vine about same as Kentucky Wonder Pole, but pods most resemble White's Prolific, differing principally in solid green color, rounder, straighter, more deeply creasebacked shape, earlier season, and absolute stringlessness.

History.—First listed in 1903 by Vaughan Seed Company, who state that the variety is of German origin.

Illustrations.—Dry seeds are illustrated on Plate IV, 20; green shell pod and cross section of same resemble Kentucky Wonder Pole (Pl. XV, 2, and Pl. V, 25, respectively), differing principally in smoother, smaller, straighter, and somewhat flatter shape, besides differing in color of both seed and pod.

CHILDS'S HORTICULTURAL POLE.

Listed by 1 seedsman. Seed tested: Childs, 1905.

Description.—Vines of large growth, of poor climbing habit when young, but doing well when once started, thick stemmed, much branched, wholly green, intermediate to late in season, long in bearing, heavily productive. Leaf medium large in size, dark green in color. Flowers pink. Snap pods uniform in size, long, slightly curved at middle, flat, of somewhat coarse surface, dark green, barely brittle, stringy, somewhat tough, of moderate fiber, of fair quality, free from anthracnose. Point of pod long and curved. Green shell pods abundantly and distinctly splashed with brilliant red, moderately depressed on outside between seeds, about 6¾ inches long, and usually containing 6 to 8 seeds somewhat separated in pod. Dry pods very easy to thrash. Dry seeds large-medium, proportionally short, roundish through cross section, generally well rounded at ends, flat or rounded at eye, pale buff freely splashed with reddish purple.

Comparison.—One of the minor varieties of the country and not largely planted except in New England, where the Horticultural class is used almost exclusively for green shell beans. Ranks equally with Brockton as the best of the Horticultural class for strictly green shell beans, but is of little value for snaps. More certain cropper than Worcester Mammoth, more brilliantly splashed and salable than London Horticultural, and more productive than Extra Early Horticultural; not, however, as productive as Lazy Wife or Black Kentucky Wonder or as generally useful. More like Brockton Pole than any other, differing principally in slightly later season, narrower pods, and shorter pod point.

History.—Introduced in 1891 by John Lewis Childs, who writes that the variety was discovered in a farmer's garden at North Jay, Me.

Illustrations.—Dry seeds are illustrated on Plate I, 10; green shell pods are similar to Brockton Pole (Pl. XIX, 2).

CONCORD POLE.

Listed by 2 seedsmen. Seeds tested: Emerson, 1904.

Description.—Vine of large-medium growth, of poor climbing habit when young, but doing well when once started, thick stemmed, much branched, green throughout, intermediate in season, long in bearing, moderately productive. Leaf small-medium in size, medium green in color. Flowers white. Snap pods very uniform in size, medium in length, curved at middle, flat, medium green, of decidedly coarse surface, somewhat tough, very stringy, of poor quality, free from anthracnose. Point of pod medium in size and very straight. Green shell pods never colored or splashed, much depressed on outside between seeds, about 5 inches long, and usually containing 6 or 7 seeds well separated in pod. Dry pods very easy to thrash. Dry seeds large-medium, proportionally short, roundish oval through cross section, truncate or rounded at ends, rounded or flat at eye, white at back, light buff in front with light mahogany markings around eye, the white color covering two-thirds of seed.

Comparison.—Little known or cultivated and of no great value, being decidedly too tough for snaps and too unattractive in appearance for good green shell beans. Its only recommendation, if any, seems to be hardiness and sure cropping qualities. More like Red Cranberry Pole than any other, differing principally in earliness and greater toughness, width, and flatness of pod; also similar to Lazy Wife.

Synonyms.—Big Sioux Pole, Hemisphere Pole, October Pole, Tall Sioux Pole.

History.—Introduced about 1865 and said to have originated at Concord, Mass.

Illustrations.—Dry seeds are illustrated on Plate I, 12; green shell pods on Plate XX, 2.

DUTCH CASE KNIFE POLE.

Listed by 111 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900; Fish, 1903, 1904; Lompoc, 1905; McClure, 1903; Morse, 1906; Thorburn, 1897, 1901, 1902, 1905.

Description.—Vine of large-medium growth, of good climbing habit, moderately branched, thick stemmed, wholly green, late-intermediate in season, of moderate to long bearing period, moderately to heavily productive. Leaf of medium size, of medium green color. Flowers white. Snap pods somewhat varying in size, very long, fairly straight, very flat, medium green in color, of somewhat coarse surface, very tough, very stringy, of much fiber, of very poor quality, free from anthracnose. Green shell pods solid green except black lines along sutures and occasionally splashed with faint purple, very much depressed on outside between beans, about 8 inches long, and usually containing 7 or 8 seeds much separated in pod. Dry pods very easy to thrash. Dry seeds very large, proportionally medium in length, flattish through cross section, truncate or rounded at ends, decidedly incurved at eye, sometimes irregular in shape or bulged out on one side, solid white.

Comparison.—One of the six most largely planted Kidney pole beans. Most popular in the Middle West. Decidedly too tough and thin walled for snaps, but largely planted as a late green shell bean, for which use it ranks equally with Lazy Wife Pole and Worcester Mammoth. Except Early Giant Advance it is the flattest podded variety cultivated in the United States. More like Early Giant Advance than any other, differing principally in earliness and size of pods.

Synonyms.—Princess Pole, Corn Hill Pole.

History.—Cultivated in this country at least since 1820, and one of the oldest of the pole varieties.

Illustrations.—Dry seeds are illustrated on Plate IV, 24; cross section of snap pods on Plate V, 28; and green shell pod on Plate XX, 1.

EARLY GIANT ADVANCE POLE.

Listed by 1 seedsman. Seeds tested: Vaughan, 1905, 1906.

Description.—Vine of small growth, of good climbing habit, little branched, slender stemmed, very early, of short bearing period, lightly productive. Leaf of medium size, of medium green color. Flowers white. Snap pods variable in size, generally very long, straight, very flat, medium green in color, of somewhat coarse surface, very tough, very stringy, of much fiber, very poor in quality, free from anthracnose. Point of pod medium in size and slightly curved. Green shell pods solid green in color excepting black lines along dorsal and ventral sutures, and sometimes sparingly splashed throughout pod with faint purple, very much depressed on outside between seeds, about 7 inches long and usually containing 7 or 8 seeds much separated in pod. Dry pods very easy to thrash. Dry seeds very large, proportionally medium in length, flattish through cross section, truncate or rounded at ends, decidedly incurved at eye, sometimes irregular in shape, bulged out on one side, solid white.

Comparison.—New, little cultivated, and of but limited usefulness. Decidedly too thin walled and tough for snaps. Suitable only for green shell beans, and desirable for this use only because of its large white seed and extreme earliness. Too small-growing and unproductive as a general crop for green or dry shell beans. Most like Dutch Case Knife, the pods being indistinguishable from that variety, but vine differing principally in being less productive, much earlier in season, and much smaller in growth.

History.—Introduced in 1903 from Germany by J. C. Vaughan Seed Company.

Illustrations.—Dry seeds, green shell pods, and cross sections of snap pods are same as Dutch Case Knife (Pl. IV, 24; Pl. XX, 1; and Pl. V, 28, respectively).

EXTRA EARLY HORTICULTURAL POLE.

No longer listed by American seedsmen. Seeds tested: Ross, 1904–1906.

Description.—Vine of large-medium growth, of somewhat poor climbing habit when young, but climbing well when once started, somewhat thick stemmed, moderately branched, wholly green, early, of moderate bearing period, moderately to lightly productive. Leaf large-medium in size, dark green. Flowers pink. Snap pods very uniform in size, proportionally very short and wide, very straight, flat, dark green, of somewhat coarse surface, brittle, stringless, of small fiber, of fair quality, free from anthracnose. Point of pod long and very straight. Green shell pods generally abundantly and distinctly splashed with brilliant red, moderately depressed on outside between seeds, about 5¼ inches long, and usually containing 5 seeds fairly separated in pod. Dry pods generally easy to thrash. Dry seeds large-medium, proportionally short, roundish oval through cross section, invariably well rounded at ends, rounded or full at eye, pale buff in color, freely splashed with purplish red.

Comparison.—One of the lesser grown pole varieties. Apparently cultivated only in New England. Decidedly the most handsomely splashed and earliest of the Horticultural class, but for a main crop variety either Brockton or London Horticultural Pole is much more productive and desirable for green shell beans than any other of the Horticultural class. Usable as snaps for only a short time and generally of little value for that purpose. Most like Brockton Pole, differing principally in season, size, absence of string, and shortness of point.

History.—Introduced in 1902 by Ross Brothers, who state the variety originated with gardeners in the vicinity of Worcester, Mass., where it is locally known as Little Gem and Little Wonder.

Illustrations.—Dry seeds are illustrated on Plate I, 8, and green shell pods on Plate XV, 1.

KENTUCKY WONDER POLE.

Listed by 125 seedsmen. Seeds tested: Armsby, 1906; Ferry, 1898, 1900, 1903, 1905; Grenell, 1903; Lompoc, 1905, 1906; McClure, 1903; Rice, 1905, 1906; Routzahn, 1905; Thorburn, 1897, 1901, 1902.

Description.—Vine of small-medium growth, of good climbing habit, moderately branched, slender stemmed, open in habit, green throughout, very early, of short bearing period, moderately productive. Leaf medium in size, medium green in color. Flowers white. Snap pods uniform in size, very long, decidedly scimiter curved, much bent back at extreme stem end, much curved inward at tip end, round through cross section, deeply creasebacked, medium green in color, of very coarse and undulating surface, extremely brittle; slightly stringy, without fiber, of good quality, fairly free from anthracnose. Point of pod short and curved. Green shell pods early tinged with pink, somewhat splashed with red, very much depressed on outside between seeds, of much wrinkled and undulated surface, about 8¾ inches long, and usually containing 8 to 10 seeds fairly separated in pod. Dry pods very easy to thrash. Dry seeds of large-medium size, long, oval-triangular through cross section, rounded or slightly truncate at ends, straight or slightly incurved at eye, somewhat irregular in shape, sometimes bent on one side and bulged out on other, solid chamois in color quickly fading to dark fawn, always with minute reddish area around eye.

Comparison.—By far the best known and most generally cultivated pole variety. Largely and successfully grown in all parts of the country. Ranks equally with White Creaseback and Burger's Stringless as one of the best early pole snap beans for home or market, though as a main crop variety or for strictly green shell beans there are other more productive sorts. Variety easily identified by its peculiarly wrinkled surface and great length of pods, which are similar to Tennessee Wonder and also resemble Black Kentucky Wonder in respect to the wrinkled surface.

Synonyms.—American Sickle Pole, Archias's Improved Kentucky Wonder Pole, Eastern Wonder Pole, Georgia Monstrous Pole, Monstrous-Podded Southern Prolific Pole, Old Homestead Pole, Texas Prolific Pole.

History.—First listed by American seedsmen about 1875.

Illustrations.—A cross section of green shell pod is shown on Plate V, 25, and green shell pods on Plate XV, 2.

LAZY WIFE POLE.

Listed by 131 seedsmen. Seeds tested: Armsby, 1906; Burpee, 1900; Ferry, 1903; May, 1897, 1905, 1906; Rice, 1906; Thorburn, 1901, 1902, 1905; Wood, 1897.

Description.—Vine of large growth, of poor climbing habit when young, but doing well when once started, thick stemmed, much branched, wholly green, late, long in bearing, heavily productive. Leaf small, of medium green color. Flowers white. Snap pods uniform in size, long-medium, much curved back at stem end, otherwise very straight, very flat, much bulged out at seeds, light green, brittle, of smooth surface, stringless, of inappreciable fiber, of good quality, free from anthracnose. Point of pod short and very straight. Green shell pods never colored or splashed, much sunken between seeds, about 5⅜ inches long, and usually containing 7 or 8 seeds crowded in pod. Dry pods fairly easy to thrash. Dry seeds of medium size, very short or almost as wide as long, roundish through cross section, generally well rounded at ends, decidedly larger at one end than at other, much rounded or full at eye, solid white.

Comparison.—One of the five most largely grown kidney pole varieties. The best general purpose late pole variety, excellent for either home or market. Of superior quality as snaps and on account of large white seeds and attractive pods excellent also for green or dry shell beans. For late snap beans it is surpassed only by Scotia and Black Kentucky Wonder, while it is best of all for late white-seeded green or dry shell beans. More like Arlington Red Cranberry than any other, differing principally in seed, and later, flatter, wider pods. Also similar to Concord Pole. Pods hardly distinguishable from Warren Bush.

Synonyms.—Maryland White Pole, White Cherry Pole.

History.—Name first used about 1882, though the type or one similar to it is said to have been in existence at least since 1810 under the name of White Cherry Pole and White Cranberry Pole. The old type was probably not stringless like the present day type.

Illustrations.—Dry seeds are shown on Plate IV, 16; green shell pods on Plate XV, 3.

LONDON HORTICULTURAL POLE.

Listed by 116 seedsmen. Seeds tested: Ferry, 1903; Fish, 1903–1905.

Description.—Vine of large growth, of poor climbing habit when young, but climbing well when once started, thick stemmed, much branched, wholly green, late, long in bearing, heavily productive. Leaf of medium size, dark green. Flowers pink. Snap pods uniform in size, long, straight, flat, becoming oval at green shell stage, very dark green, of smooth surface, brittle, stringless, of small fiber, of good quality, fairly free from anthracnose. Point of pod medium in size and straight. Green shell pods abundantly and distinctly splashed with purplish red but not until very late, moderately depressed on outside between seeds, about 6 inches long, and usually containing 6 or 7 seeds fairly close in pod. Dry pods fairly easy to thrash. Dry seeds large-medium, proportionally very short, roundish oval through cross section, generally truncate at ends, rounded or full at eye, pale buff in color freely splashed with purplish red.

Comparison.—One of the five most largely grown Kidney pole beans. Decidedly the best of the Horticultural varieties for general use and almost equal to Lazy Wife as a general-purpose late snap and green shell bean suitable for home or market. More reliable than Worcester Mammoth and much better as snaps than Childs's Horticultural or Brockton Pole, but for green shell beans its pods are not nearly as brilliantly splashed and handsome. More like Childs's Horticultural than any other variety now listed by American seedsmen, differing principally in season, color of splashing, and freedom from string.

Synonyms.—Horticultural Cranberry Pole, Horticultural Pole, Speckled Cranberry Pole, Wren's Egg Pole.

History.—Name has been in common use in this country at least since about 1860.

Illustrations.—Dry seeds are illustrated on Plate I, 6, green shell pods are intermediate in shape between those of Concord Pole (Pl. XX, 2) and Red Cranberry Pole (Pl. XVIII, 3), and splashed about the same as Brockton Pole (Pl. XIX, 2).

MISSOURI WONDER POLE.

Listed by 2 seedsmen. Seeds tested: Field, 1904, 1905.

Description.—Vine of large growth, of good climbing habit, much branched, thick stemmed, wholly green, late, long in bearing, very heavily productive. Leaf small-medium in size, medium green in color. Flowers white. Snap pods very uniform in size, long, much curved, flat, medium green in color, of smooth surface, very tough, very stringy, of much fiber, of poor quality, very free from anthracnose. Point of pod medium in size and straight. Green shell pods generally solid light green, sometimes splashed with faint red, much depressed between seeds, about 5¾ inches long, and usually containing 7 seeds well separated in pod. Dry pods very easy to thrash. Dry seeds medium in size, medium in length, flattish oval through cross section, rounded or truncate at ends, generally slightly incurved at eye, pinkish drab in color, striped and spotted with tan brown, and with minute reddish area around eye.

Comparison.—Little known and planted and of but limited usefulness. Decidedly too tough and thin walled for good snaps and too small seeded, narrow podded, and unattractive for good green shell beans. Its usefulness, if any, seems to be for planting among corn for dry beans, but even for this purpose the white-seeded Royal Corn and Lazy Wife are generally far better varieties, though perhaps not always so productive and hardy. Most like Royal Corn and Southern Prolific, differing from former principally in much earlier season, shorter, flatter shape, and faintly splashed color when old. Pods quite similar in shape to Long Yellow Six Weeks Bush.

History.—Introduced in 1903 by several western seedsmen.

Illustrations.—Snap pods are similar in shape to Long Yellow Six Weeks (Pl. X, 1) and cross sections of snap pods to Mohawk (Pl. V, 17).

POWELL'S PROLIFIC POLE.

Listed by 3 seedsmen. Seeds tested: Livingston, 1898–1902, 1905.

Description.—Vine of very large growth, of good climbing habit, much branched, very thick stemmed, often purplish tinged on stems, very late, very long in bearing period, very heavily productive. Leaf large-medium in size, medium green in color. Snap pods very uniform in size, long, fairly straight, round, deeply creasebacked, light green in color, of very smooth and glossy surface, extremely brittle, stringy, of small fiber, of good quality, free from anthracnose. Point of pod short and curved. Green shell pods varying in color from almost solid green to almost solid purple, full on outside between seeds, about 5⅜ inches long, and usually containing 8 or 9 seeds very crowded in pod. Dry pods very easy to thrash. Dry seeds small, proportionally long, roundish oval through cross section, rounded or truncate at ends, straight at eye, solid black to madder brown in color.

Comparison.—Little known and planted. The latest in season, the largest in growth, and where full crops can be obtained, probably the first in productiveness among Kidney pole beans. Decidedly too late for general cultivation at the North, but excellent at the South, where it makes the best show or exhibition variety, so far as large growth and immense productiveness are concerned. Produces excellent snap beans for either home or market, but for general reliability and usefulness Scotia, Black Kentucky Wonder, and Lazy Wife are much better as late sorts for most parts of the country. Pod and vine very similar to the late round-podded plants often found in stocks of White Creaseback; also similar to Scotia and the fleshy round-podded type of Southern Prolific.

History.—Introduced in 1887 by A. T. Cook and originated by E. P. Powell.

Illustrations.—Dry seeds are illustrated on Plate II, 16, and cross section of snap pod on Plate V, 23, while green shell pods are same as White Creaseback Pole (Pl. XIX, 1) except larger.

RED CRANBERRY POLE.

Listed by 8 seedsmen. Seeds tested: Breck, 1905; Schlegel & Fottler, 1904.

Description.—Vine of very large growth, of poor climbing habit when young, but doing well when once started, thick stemmed, much branched, wholly green, late-intermediate in season, long in bearing, heavily productive. Leaf small-medium in size, medium green in color. Flowers pink. Snap pods uniform in size, long-medium, straight except curved back at stem end, flat, light green, of smooth surface, brittle, moderately stringy, of small fiber, of medium to good quality, free from anthracnose. Point of pod short and very straight. Green shell pods mostly solid green, often slightly purplish tinged along sutures, much depressed on outside between seeds, about 5⅜ inches long, and usually containing 7 or 8 seeds quite crowded in pod. Dry pods fairly easy to thrash. Dry seeds medium in size, but varying considerably, almost as wide as long, roundish through cross section, well rounded at ends, rounded or full at eye, solid plum-violet in color.

Comparison.—About 1875 it was one of the most largely grown pole varieties, but to-day is only little known and planted. Lazy Wife is much more desirable as a general-purpose late variety, and Black Kentucky Wonder, Scotia, and Arlington Red Cranberry are much preferable for strictly snap pods. Except that pods are stringy, the variety is hardly distinguishable from Arlington Red Cranberry, differing principally in being somewhat more hardy and productive and a few days earlier in season. Also similar to Lazy Wife and Concord Pole, and pod closely resembles Warren Bush and Yellow Cranberry.

History.—Cultivated in this country at least since 1820 and one of the oldest pole varieties.

Illustrations.—Green shell pods are shown on Plate XVIII, 3.

ROYAL CORN POLE.

Listed by 2 seedsmen. Seeds tested: Livingston, 1904, 1906.

Description.—Vine of very large growth, of fair climbing habit, much branched, thick stemmed, green throughout, late, long in bearing, heavily productive. Leaf of medium size, of medium green color. Flowers white. Snap pods somewhat variable in size, extremely long and slender, very curved, especially at tip end, generally much twisted, oval through cross section, becoming flat at green shell stage, medium green, of fairly smooth surface, barely brittle, very stringy, of much fiber, of fair quality, very free from anthracnose. Point of pod fairly straight and of medium size. Green shell pod with black lines along dorsal and ventral sutures, otherwise never colored or appreciably splashed, somewhat depressed on outside between seeds, often with missing seeds, sometimes imperfect at tip, about 8 inches long, and usually containing 8 or 9 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds small, proportionally medium in length, oval through cross section, rounded or slightly truncate at ends, almost straight at eye, solid white.

Comparison.—New and valuable but as yet little known or cultivated. Possibly too late in season for always ripening full crops at the extreme North, but excellent as a late variety for other sections, especially the South, its white seed particularly commending it as a late sort where colored seed is objectionable. Being earlier and more productive the variety is generally more satisfactory for snaps than White Sickle

Pole, but seeds are somewhat too small to make a good green shell variety. Most like White Sickle, differing principally in being earlier, more productive, more stringy, and flatter podded.

Synonyms.—Livingston's Royal Corn, Schwill's Royal Corn.

History.—Introduced in 1898 by Livingston Seed Company, as Livingston's Royal Corn.

Illustrations.—Dry seeds are illustrated on Plate IV, 8, and green shell pods on Plate XX, 3.

SCOTIA POLE.

Listed by 3 seedsmen. Seeds tested: Harris, 1902, 1904, 1905; Schwill, 1905.

Description.—Vine of large growth, of good climbing habit, much branched, thick stemmed, generally dark purplish tinged in places on stems, late-intermediate in season, very long in bearing, very heavily productive. Leaf small-medium, very smooth, dark green, often somewhat purplish tinged. Flowers pink. Snap pods uniform in size, very long, very straight, round, exceedingly large in diameter, deeply creasebacked, dark green, sometimes purplish tinged, of exceedingly smooth and glossy surface, fairly brittle, of very hard flesh, stringy, of moderate fiber, of good quality, very free from anthracnose. Point of pod very short and curved. Green shell pods generally tinged with purple, sparingly splashed with purplish red, very full on outside between seeds, about 7¼ inches long, and usually containing 8 to 10 seeds very crowded in pod. Dry pods fairly easy to thrash. Dry seeds small-medium in size, proportionally short, oval through cross section, well rounded at ends, straight at eye, very light mottled putty in color and also colored throughout with long circular strips of blackish olive green and always with minute yellow ocher area around eye.

Comparison.—Little known and cultivated. With Black Kentucky Wonder it possesses the distinction of being one of the best two late pole varieties as snaps for home or market, Black Kentucky Wonder being somewhat preferable for home use on account of its better quality. Both varieties are unsurpassed by any of their class in remarkable combination of productiveness, hardiness, and exceedingly thick, immense, handsome pods. Available for snaps longer than any other variety and ripens early enough to mature good crops at the North. A most reliable and showy sort for exhibition purposes. Color of pod, vine, and leaf same as Tennessee Wonder but quite different from that variety in other respects. Easily identified by its small leaves, purplish color, and thick, straight pods. More like Powell's Prolific than any other variety. Pods similar to White Creaseback, differing principally in purplish color and larger size.

History.—Introduced in 1892 by Jos. Harris Company, who state that the seed came from a customer in eastern New York.

Illustrations.—Cross section of snap pod is shown on Plate V, 15, and snap pods on Plate XVII, 2.

SOUTHERN PROLIFIC POLE.

Listed by 38 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1900, 1906; Fish, 1903, 1904; Johnson & Stokes, 1906; McClure, 1903; Rogers, 1906; Thorburn, 1901, 1902, 1905, 1906; Wood, 1897.

Description of long, flat-podded type.—Vine of very large growth, of good climbing habit, much branched, very thick stemmed, often purplish tinged at ends, late, long in bearing, very heavily productive. Leaves small, dark green. Flowers white. Snap pods uniform in size, long, flat, becoming oval at green shell stage, of rather dull grayish green color, of smooth surface, very tough, very stringy, of much fiber, of poor quality, very free from anthracnose. Point of pod medium in size and slightly curved. Green shell pods often purplish tinged, sometimes almost solid purple, moderately depressed between seeds, about 6 inches long, and usually containing 8 to 10 seeds somewhat close in pod. Dry pods easy to thrash. Dry seeds small-medium, long, roundish or oval through cross section, rounded or truncate at ends, straight at eye, varying in color from solid dark fawn in some beans to light fawn in others.

Description of short fleshy-podded type.—See comparison below.

Comparison of long and short-podded types.—About 1880 this bean was one of the best known and most generally cultivated of the pole varieties, but to-day is only little planted, and the variety, once brittle and fleshy-podded and excellent for snaps, has degenerated into a mixture of tough-podded beans, generally containing more fiber and less suited for snaps than any other pole variety; at least, so far as our experiments have been carried, no samples have shown any considerable number of the old fleshy pods of twenty years ago. Most of present day stocks seem to consist largely of the long flat-podded type described above or of pods about the shape of Navy Pea but about twice as large, and more resembling Virginia Cornfield than any other pole variety. Some present day stocks also contain a shorter and less flat-podded type, somewhat resembling the old brittle-podded type, but decidedly too tough and stringy for use as snaps, somewhat oval through cross section, and inclined to be very reddish tinged at green shell stage. Besides above differences in pod, present day stocks vary considerably also in the color of seeds.

Synonym of long flat-podded type.—Willing's Pride Pole.

History.—Listed in 1873 by D. Landreth Seed Company, although probably cultivated in the South before that time.

Illustrations.—Light colored seeds are illustrated on Plate II, 2; cross section of the old, true, fleshy-podded type on Plate V, 1; cross section of present long, flat-podded type on Plate V, 2; green shell pods of the long, flat-podded type, the present short, tough-podded type, and the old, short, fleshy-podded type on Plate XVI, 1, 2, and 4, respectively.

SPECKLED CUT SHORT POLE.

Listed by 101 seedsmen. Seeds tested: Ferry, 1898, 1900; Fish, 1903, 1904; McClure, 1903; Thorburn, 1897, 1902.

Description.—Vine of moderate to large growth, of good climbing habit, moderately branching, somewhat thick stemmed, wholly green, intermediate-late in season, long in bearing, heavily productive. Leaf small-medium in size, medium green in color. Flowers white. Snap pods very uniform in size, very short, very straight, decidedly bulged out in places, flat, becoming oval at green shell stage, medium green in color, of smooth surface, somewhat tough, very stringy, of moderate fiber, medium to poor in quality, fairly free from anthracnose. Point of pod short and very straight. Green shell pods reddish tinged, much depressed on outside between beans, about 4 inches long, and usually containing 7 seeds very crowded in pod. Dry pods very easy to thrash. Dry seeds small, very short, sometimes wider than long, oval through cross section, decidedly truncate and generally more obliquely than squarely so, invariably straight at eye, irregular and variable in shape, dingy gray in color, dotted or completely covered with purplish red around eye, at back, and one end.

Comparison.—One of the 6 most largely cultivated Kidney pole beans. Probably more largely used for planting among corn than any other variety and apparently useful only for this purpose. Pods and seeds much too small and unattractive as green shell beans for sale in market or for general use. Variety does not closely resemble any other pole bean, but in shape and color of pods it is perhaps as much like Lazy Wife as any, although much smaller. Pods also similar to those of Navy Bush, differing principally in color, size, and with seeds more crowded in pod.

Synonyms.—Corn Hill Pole, Cornfield Pole, Cut Short Pole.

History.—Type apparently first known in this country as Corn Bean, later as Corn Hill, and within the last ten or twenty years as Speckled Cut Short. The name Corn Hill has been in use at least since 1835.

Illustrations.—Dry seeds are illustrated on Plate I, 1; green shell pods on Plate XVII, 1 and 4; cross section of snap pod is similar to Navy Pea (Pl. V, 3), differing principally in larger size.

TENNESSEE WONDER POLE.

Listed by 1 seedsman. Seeds tested: Landreth, 1905.

Description.—Vine of small-medium growth, of good climbing habit, few to moderately branched, slender stemmed, open in habit, purplish tinged in places on stems, intermediate-early in season, of moderate bearing period, lightly productive. Leaf large-medium in size, medium green in color, often purplish tinged. Flowers pink. Snap pods variable in size, very long, very curved, decidedly scimiter shaped, much curved at extreme blossom end, almost double barreled through cross section, deeply creasebacked, medium green, of coarse and undulating surface, very brittle, of inappreciable string, without fiber, of good quality. Fairly free from anthracnose. Point of pod long and curved. Green shell pods generally tinged with purple and splashed with purplish red, much depressed on outside between seeds, of much wrinkled surface, about 9⅛ inches long, and usually containing 8 or 9 seeds fairly separated in pod. Dry pods easy to thrash. Dry seeds large, extremely slender, flattish oval through cross section, invariably well rounded at ends, straight or slightly incurved at eye, very irregular in shape, generally more or less flattened, depressed, or bulged out in places, slate gray in color marked throughout with long curved stripes of black olive green, also minute area of same color around eye.

Comparison.—Little known and cultivated. The largest, straightest, and most handsome-podded of all cultivated beans, but compared to Kentucky Wonder its pods are too late and decidedly too few in number for practical usefulness, and the variety is really useful only as an exhibition or show bean. Pods, leaves, and stems same color as Scotia, but quite different in other respects. Most like Kentucky Wonder, differing principally in purplish tinged pods, leaves, and stems, and larger, straighter, later, and more double-barreled pods.

Synonym.—Holmes's Improved Sickle Pole.

History.—Introduced in 1901 by D. Landreth Seed Company.

Illustrations.—Dry seeds are illustrated on Plate III, 13; green shell pods and cross sections of same are similar to Kentucky Wonder (Pl. XV, 2, and Pl. V, 25, respectively).

VIRGINIA CORNFIELD POLE.

Listed by one seedsman. Seeds tested: Wood, 1905, 1906.

Description.—Vine of very large growth, of good climbing habit, much branched, very thick stemmed, wholly green, very late, very long in bearing, very heavily productive. Leaf medium in size, dark green in color. Flowers white. Snap pods uniform in size, long, much curved, very flat, medium green in color, of somewhat coarse surface, very tough, very stringy, of much fiber, of poor quality, very free from anthracnose. Point of pod medium in size and moderately curved. Green shell pods generally solid green, sometimes sparingly splashed wih faint purple, moderately depressed on outside between seeds, about 6¾ inches long, and usually containing 8 or 9 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds of medium size, proportionally short, oval through cross section, truncate or rounded at ends, straight at eye, solid white.

Comparison.—Little known, little cultivated, and of very limited usefulness. Decidedly too late for planting at the North, much too tough and stringy for good snaps, and too small-seeded and slender-podded to be recommended as a good green shell bean. Its value, if any, seems to be for planting among corn for dry beans in the South, for which purpose it is better than the present type of Southern Prolific or Missouri Wonder, as its seeds are pure white in color. Next to Powell's Prolific it is the latest in season and makes the largest growth of any variety listed by American seedsmen. More like the long flat-podded type of Southern Prolific than any other variety. Similar in general character and usefulness to Missouri Wonder and Royal Corn.

History.—Introduced in 1905 by T. W. Wood & Sons.

Illustrations.—Dry seeds resemble Royal Corn (Pl. IV, 8), differing principally in larger size; green shell pods resemble the long flat-podded type of Southern Prolific (Pl. XVI, 1), differing principally in being wider and flatter.

WHITE CREASEBACK POLE.

Listed by 82 seedsmen. Seeds tested: Armsby, 1906; Burpee, 1897, 1901, 1905; Ferry, 1900, 1902; Fish, 1905; Lompoc, 1906; May, 1905, 1906; Morse, 1906; Rice, 1905, 1906; Rogers, 1904; Routzahn, 1905; Steckler, 1905.

Description of early or true type.—Vine small in growth, at first often bushlike in habit but climbing well when once started, few branched, slender stemmed, green throughout, very early, short in bearing period, moderately to lightly productive. Leaf of medium size, of medium green color. Snap pods very uniform in size, long-medium, fairly straight, of exceedingly smooth surface, round, often double barreled or greater in diameter from side to side than from suture to suture, generally deeply creasebacked but sometimes flat at back and front at green shell stage, medium green in color, extremely brittle, stringy, of small fiber, of very good quality, quite free from anthracnose. Point of pod short and curved. Green shell pods generally solid green, sometimes sparingly splashed with faint purple, full on outside between seeds, about 5 inches long, and usually containing 7 seeds crowded in pod. Dry pods easy to thrash. Dry seeds small, of medium length, roundish through cross section, generally more or less truncate at ends, straight at eye, solid white.

Description of late type.—Same as above except vine very large in growth, much branched, thick stemmed, very late, long in bearing, heavily productive, and pods long.

Comparison of early and late types.—One of the five most generally cultivated Kidney pole beans and largely planted in all parts of the country, especially the South. Present day stocks are much mixed and confused and usually consist either of an early or late type, or a mixture of both. The early type, which is the original true variety, is the earliest of the pole sorts to produce snap pods, and ranks equally with Kentucky Wonder and Burger's Stringless as the best extremely early snap bean for home or market. It should be similar in growth of vine and a few days earlier in season than Kentucky Wonder. Its pods should be a little smaller and of about the same shape as Powell's Prolific, and similar also to those of Scotia Pole and Byer's Bush. The pods of the late type are usually similar to the true strain, and generally differ only in slightly larger size. In some very degenerated stocks, however, the pods are very flat, but whatever the shape of pods, the season is always very late and the vines very large and coarse, so much so that in mixtures of the two types the frail slender plants of the early type are generally crowded out and rendered useless. The late type is similar in season, vine, and pod to Powell's Prolific, differing principally in the wholly green color of its pods and vines, its pure white seed, and not quite so late season. Gardeners who seek earliness will find the late type to be a great disappointment and perhaps a great loss. For these reasons seedsmen should see that they not only have the right type but that their stocks are free from late plants.

Synonyms of early or true type.—Best of All Pole, Blue Lake Creaseback Pole, Fat Horse Pole, July Pole, Missouri White Cornfield Pole, Point Market Prolific Pole, Southern Creaseback Pole, Tall July Runner Pole, White Cornfield Pole.

Synonyms of late type.—None.

History.—Apparently first listed in this country in 1881 by the former Richard Frotcher Seed Company, the predecessors of J. Steckler Seed Company. It is said to have been grown in the South many years before this time, but never brought prominently before the public until 1881.

Illustrations.—Dry seeds are illustrated on Plate IV, 7; snap pods on Plate XIX, 1; cross sections of snap pods are similar to Scotia (Pl. V, 15), differing principally in smaller size.

WHITE SICKLE POLE.

Listed by 8 seedsmen. Seeds tested: Ferry, 1900, 1904, 1905.

Description.—Vine of very large growth, of fair climbing habit, much branched, thick stemmed, wholly green, very late, long in bearing, moderately to heavily productive. Leaf of medium size, of medium green color. Flowers white. Snap pods somewhat variable in size, extremely long, very slender, very curved, especially at tip end, often much twisted, generally round, sometimes almost double barreled through cross section, deeply creasebacked both at dorsal and ventral sutures, of rough and undulating surface, medium green, very brittle, very stringy, of moderate fiber, of good quality. Point of pod long and moderately curved. Green shell pods never colored or splashed, much depressed on outside between seeds, of very wrinkled and uneven surface, about 9¼ inches long, and usually containing 8 or 9 seeds somewhat separated in pod. Dry pods easy to thrash. Dry seeds large, very slender, roundish or roundish oval through cross section, well rounded or decidedly tapering at ends, straight and slightly incurved at eye, exceedingly irregular in shape, generally bent or bulged out considerably on one side, solid white except minute area of yellow around eye.

Comparison.—One of the little known and lesser cultivated varieties. Decidedly too late for general cultivation at the North but a good late variety for snaps at the South. It is questionable, however, whether it is as desirable even in that section as Scotia, Black Kentucky Wonder, or Royal Corn. As the last-named variety is white-seeded it would seem to fill every requirement of White Sickle, with the additional advantage of being earlier and more productive. After Royal Corn the variety most resembles Kentucky Wonder, differing principally in much larger and later vine and longer, slenderer, more deeply creasebacked, more solid green pods; also similar to Tennessee Wonder.

Confusing names.—Holmes's Improved Sickle, American Sickle, both very different varieties from White Sickle.

History.—Introduced in 1882 by the former Richard Frotscher Seed Company, the predecessors of J. Steckler Seed Company. It is said to have been grown at the South for many years before that time but never brought prominently before the public until 1882.

Illustrations.—Dry seeds are illustrated on Plate IV, 23; green shell pods and cross sections of same resemble Kentucky Wonder Pole (Pl. XV, 2, and Pl. V, 25, respectively).

WHITE'S PROLIFIC POLE.

Listed by 1 seedsman. Seeds tested: Godden, 1905.

Description.—Vine of large-medium growth, of good climbing habit, moderately branched, thick stemmed, wholly green, intermediate in season, of moderate to long bearing period, heavily productive. Leaf large-medium in size, medium green in color. Flowers white. Snap pods uniform in size, very long, decidedly scimiter curved, flat, deeply creasebacked, medium green in color, of coarse surface, brittle, stringy, of small fiber, of good quality, fairly free from anthracnose. Point of pod long and curved. Green shell pods generally sparingly splashed with faint purple, somewhat depressed on outside between seeds, about 7 inches long, and usually containing 7 or 8 seeds fairly close in pod. Dry pods easy to thrash. Dry seeds large, long, flattish oval through cross section, rounded or truncate at ends, generally straight at eye, somewhat irregular in shape, often bent or bulged out on one side, putty colored with golden-bronze green stripes and also minute area of yellow ocher around eye.

Comparison.—Little known and cultivated. Excellent as snaps and green shell beans for home or market. The best variety for late snaps in places where Black Kentucky Wonder and extremely late varieties do not mature full crops. Ranks almost equally with Lazy Wife and Arlington Red Cranberry as a general-purpose snap and green shell bean. After Black Kentucky Wonder the pods most resemble Burger's Stringless, Kentucky Wonder, and Tennessee Wonder. Very similar to the English variety known as Sutton's Epicure.

Synonyms.—Noxall Pole, Rhode Island Butter Pole.

History.—Of uncertain origin and name. Some writers mention a variety of this name as early as 1850; others give it a later origin, claiming the type first originated with Fulton S. White, of Birmingham, Ala., or else in the West; while still others claim it to be renamed from Rhode Island Butter Pole. Name has been in use among American seedsmen at least since 1878.

Illustrations.—Dry seeds are illustrated on Plate II, 20, and snap pods on Plate XVIII, 2; cross sections of snap pods resemble in shape Kentucky Wonder Wax Pole (Pl. V, 26).

WORCESTER MAMMOTH POLE.

Listed by 6 seedsmen. Seeds tested: Rawson, 1897, 1901, 1904; Ross, 1904–1906.

Description.—Vine of large growth, of poor climbing habit when young but climbing well when once started, very thick stemmed, moderately branched, green throughout, intermediate-late in season, long in bearing, moderately productive. Leaf very large, very dark green. Flowers pink. Snap pods varying in size, long, fairly straight, extremely large through cross section, flat, becoming almost round at green shell stage, of coarse surface, brittle, stringless, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod very long, slender, and inclined to curl and twist. Green shell pods abundantly but not distinctly splashed with red, much depressed on outside between seeds, about 7 inches long, and usually containing 5 to 7 seeds very crowded in pod. Dry pods somewhat hard to thrash. Dry seeds very large, very much thickened, roundish oval through cross section, truncate or rounded at ends, rounded or full at eye, pale buff in color, freely splashed with purplish red.

Comparison.—One of the lesser grown varieties of the country. Succeeds best and is more largely planted in New England than in any other section. Although the largest seeded, thickest podded, and the most showy of the Horticultural class, it has always been an uncertain cropper in our trials and not so reliable as London Horticultural, or Childs's Horticultural, but where it grows to full perfection it is probably the best of the Horticultural varieties. Rarely as productive as Lazy Wife, Red Cranberry, Scotia, or Black Kentucky Wonder. More like Golden Carmine-Podded Horticultural than any other variety. Great differences exist in stocks, some of the poorer strains being almost as small podded and small seeded as London Horticultural or only one-half the size of the true type described above.

Synonyms.—Hampton Pole, King Horticultural Pole, Mammoth Horticultural Pole, Mugwump Pole, Shakers Pole.

History.—Introduced in 1895 by W. W. Rawson & Co., who write the variety originated with a market gardener near Worcester, Mass.

Illustrations.—Dry seeds are illustrated on Plate I, 9, and green shell pods on Plate XIX, 3.

POLE WAX-PODDED.

This comparatively small and unimportant class consists of varieties more useful for their snap pods than for their dry seed. The range in color, shape, and size of pods is not very wide, but the class contains many of the most handsome pods of any of the Kidney varieties.

ANDALUSIA WAX POLE.

Listed by 20 seedsmen. Seeds tested: Buckbee, 1900; Johnson & Stokes, 1902, 1904, 1905; Thorburn, 1897.

Description.—Vine of large growth, of poor climbing habit when young but doing well when once started, much branched, thick stemmed, somewhat yellowish green at stems, late, heavily productive, long in bearing. Leaf medium in size, medium green in color. Flowers white. Snap pods very uniform in size, of medium length, very curved, flat when young but becoming round at green shell stage, solid rich yellow, very smooth, brittle, stringless, without fiber, of good quality, fairly free from anthracnose. Point of pod short and fairly straight. Green shell pods never colored nor splashed, full on outside between seeds, about 5 inches long and usually containing 6 or 7 seeds very crowded in pod. Dry pods somewhat hard to thrash. Dry seeds of medium size, almost as broad as long, roundish oval through cross section, generally well rounded at ends, decidedly larger at one end than at other, much rounded or full at eye, solid white.

Comparison.—Little known and planted. Next to Indian Chief and Mont d'Or the best late wax bean for home or market, and being white seeded it is in some cases preferable even to these varieties. Pods very similar to Indian Chief, differing principally in being earlier, shorter, rounder, more curved, deeper yellow, and never colored or splashed.

Synonyms.—Golden Andalusia Wax Pole, Golden Lazy Wife Wax Pole.

History.—Introduced in 1890 by Johnson & Stokes, and said to have originated with a bean grower in Andalusia, Pa.

Illustrations.—Dry seeds are hardly distinguishable from Lazy Wife Pole (Pl. IV, 16); cross sections of snap pods are similar to Currie's Rustproof Wax Bush (Pl. V, 10), and green shell pods similar in shape to Red Cranberry Pole (Pl. XVIII, 3), differing principally in being exceedingly curved, thicker in cross section, and of longer pod point.

GOLDEN CARMINE-PODDED HORTICULTURAL WAX POLE.

Listed by 51 seedsmen. Seeds tested: Rogers, 1903–1906.

Description.—Vine of moderate growth, of good climbing habit, moderately branched, somewhat thick stemmed, green in color except generally inclined to yellowish green at stems, early, of moderate bearing period, heavily to moderately productive. Leaf large-medium in size, medium green in color. Flowers light pink. Snap pods somewhat varying in size, very long, generally straight, sometimes zigzag from side to side, sometimes much bent, always very flat, light yellow or yellowish green, of smooth surface, sometimes splashed with red, very brittle, stringless, without fiber, of good quality, free from anthracnose. Point of pod extremely long, very slender, generally twisted and curled. Green shell pods largely light yellow, distinctly and irregularly splashed with bright red, sometimes a large part of pod without splashing, much sunken on outside between seeds, about 7¼ inches long, and usually containing 6 or 7 seeds fairly separated in pod. Dry pods fairly easy to thrash. Dry seeds large, a little longer than wide, rounded oval through cross section, generally well rounded at ends, rounded or full at eye, pale buff in color, generally splashed with purplish red, but sometimes with dark purple.

Comparison.—New and as yet not generally cultivated but rapidly gaining in popularity. The best and most handsome all-round pole sort for snaps, green shell, and dry shell beans for home or market. When well grown the pods are the most brilliantly splashed of all pole varieties, but they have the undesirable feature of being much undersized, bent, and twisted when not well grown and of being hardly colored at all when the weather is cloudy or the season very wet. Pods quite different from other pole varieties, but perhaps as much like Worcester Mammoth as any, differing principally in more open habit, greater earliness, and larger pods of different color.

Synonym.—Gold and Carmine Pole.

History.—Introduced by seedsmen in 1904 and originated by Rogers Brothers, of Chaumont, N. Y.

Illustrations.—Dry seeds are shown on Plate I, 11; cross sections of snap pods are similar to Golden Cluster Wax Pole (Pl. V, 27), and snap pods similar in shape to Kentucky Wonder Wax Pole (Pl. XVI, 3), differing principally in considerably wider pods and much longer pod point; green shell pods are splashed as brilliantly as those of Extra Early Horticultural Pole (Pl. XV, 1).

GOLDEN CHAMPION WAX POLE.

Listed by 9 seedsmen. Seeds tested: Ferry, 1902; Henderson, 1897, 1905.

Description.—Vine of small growth, of poor climbing habit, moderately branched, slender stemmed for a pole bean, very yellowish at stems, very early, lightly to moderately productive, of short bearing period. Leaf very light yellow, medium in size. Flowers pink. Snap pods uniform in size, long, very much curved, round, very whitish yellow, of somewhat smooth surface, somewhat tough, stringy, of moderate fiber, of fair quality, fairly free from anthracnose. Point of pod very long, very curved. Green shell pods never colored or splashed, full on outside between seeds, about 6¾ inches long, and usually containing 7 seeds very crowded in pod. Dry pods easy to thrash. Dry seeds large-medium, slender, flattish oval through cross section, rounded or truncate at ends, generally decidedly incurved at eye, mostly solid blackish blue in color, tinged sometimes with maroon or brown shades.

Comparison.—Formerly quite popular but now little planted. Decidedly lacking in productiveness, hardiness, and sure cropping qualities and apparently of no special value except possibly for earliness, though even in this respect Kentucky Wonder Wax is almost equal to it, besides immensely more productive, hardier, and a surer cropper. Being somewhat tough and stringy, it can not be recommended as a first-class snap bean for home use. Most like Andalusia Wax, differing principally in smaller, earlier vine, and longer, rounder, better filled, more whitish yellow pods, which are almost identical with those of Bismarck Black Wax Bush.

History.—Introduced in 1890 by Peter Henderson & Co., and described by them as of European origin.

Illustrations.—Dry seeds are illustrated on Plate II, 28; snap pods on Plate XVI, 5; cross section of snap pod resembles in shape that of the round-podded type of Refugee (Pl. V, 12).

GOLDEN CLUSTER WAX POLE.

Listed by 109 seedsmen. Seeds tested: Burpee, 1901; Ferry, 1902, 1903; Fish, 1903, 1904, 1906; McClure, 1903; Rice, 1905, 1906; Thorburn, 1903, 1905.

Description.—Vine of large growth, of good climbing habit, moderately branched, thick stemmed, yellowish green at stems, early-intermediate in season, productive, of long to moderate bearing period. Leaf large, light green. Flowers white. Snap pods somewhat varying in size, very long, fairly straight, very flat, of very smooth surface, clear solid whitish yellow, very brittle, stringy, of inappreciable fiber, of good quality, fairly free from anthracnose. Point of pod long and slightly curved. Green shell pods never colored or splashed except for black lines along dorsal and ventral sutures, much depressed on outside between seeds, about 7½ inches long, and usually containing 8 seeds fairly separated in pod. Dry pods easy to thrash. Dry seeds large-medium, proportionally short, flattish through cross section, truncate or rounded at ends, generally straight at eye, generally regular in shape, sometimes bent or bulging out in places, solid white.

Comparison.—A well-known standard wax variety. More extensively grown than any of the wax pole sorts but not nearly so largely cultivated as the standard green-podded pole varieties. When stocks are pure, it is, next to Golden Carmine-Podded Horticultural, the best of the wax pole sorts as snaps and green shell beans for home or market use. Most stocks of present day are, however, badly mixed and deteriorated, and for this reason it is not safe to recommend the variety unless the quality of the stock is known. The impure stocks produce many half-greenish, unattractive, undersized pods, some being almost round in shape, while the pure type makes a fine exhibition or show variety, its immense, beautiful, yellow pods attracting even more attention than those of Kentucky Wonder Wax, Sunshine Wax, or Landreth's Pole. More like Sunshine Wax than any other pole variety, the pods being hardly distinguishable from that sort except for their greater length, width, thickness, and solid yellow color which is almost without any reddish tinge whatever. Similar also to Kentucky Wonder Wax and Landreth's Pole.

Synonym.—Early Golden Cluster Wax Pole.

History.—Introduced in 1886 by Henry A. Dreer as Dreer's Early Golden Cluster Wax Pole and described as coming from stock of John Kramer, of Doylestown, Pa., who is said to have obtained the seed from Germany.

Illustrations.—Dry seeds are illustrated on Plate IV, 18; cross section of snap pod on Plate V, 27; snap pods are similar to Kentucky Wonder Wax Pole (Pl. XVI, 3), differing principally in flatter shape.

INDIAN CHIEF WAX POLE.

Listed by 26 seedsmen. Seeds tested: Farquhar, 1905; Fish, 1905.

Description.—Vine of large growth, of poor climbing habit when young, but doing well when once started, much branched, thick stemmed, generally more or less reddish tinged at stems, late, heavily productive, of long bearing period. Leaf of medium size, of medium green color. Flowers pink. Snap pods very uniform in size, medium in length, much curved, flat, becoming round at green shell stage, of a rich, solid yellow color, of very smooth surface, brittle, stringless, without fiber, of good quality, fairly free from anthracnose. Point of pod short and fairly straight. Green shell pods somewhat reddish tinged, generally faintly purplish splashed when very old, full on outside between beans, about 5⅛ inches long, and usually containing 7 or 8 seeds very crowded in pod. Dry pods fairly easy to thrash. Dry seeds of medium size, somewhat longer than wide, roundish oval through cross section, rounded or truncate at ends, rounded or full at eye, solid deep bluish black in color.

Comparison.—A well-known wax sort but not much planted at present time. Next to Mont d'Or Wax it is the best late wax pole variety and excellent as snaps for either home or market. Probably too late in season to be generally popular and evidently largely succeeded by the earlier, larger, more handsome pods of Golden Cluster Wax, Kentucky Wonder Wax, and Golden Carmine-Podded Horticultural. In our trials it has proved to be of a different type from the samples tested of Black Wax Pole, although the two are classed by most seedsmen as identical. More like Andalusia Wax than any other, differing principally in being earlier, larger, more handsome, and more productive.

Synonyms.—Algerian Wax Pole, Black Algerian Wax Pole, Black Wax Pole, German Black Wax Pole, Tall German Black Wax Pole.

History.—Introduced into United States about 1852. Apparently the first cultivated wax-podded variety, either pole or bush.

Illustrations.—Dry seeds are illustrated on Plate II, 14; cross sections of snap pods are similar to Currie's Rustproof Wax (Pl. V, 10), and snap pods to Bismarck Black Wax Bush (Pl. VII, 1), differing principally in much flatter shape and larger size.

KENTUCKY WONDER WAX POLE.

Listed by 10 seedsmen. Seeds tested: Gregory, 1904; Johnson & Musser, 1905; Mangelsdorf, 1904–1906.

Description.—Vine of small medium growth, of good climbing habit, few branched, very open in growth, somewhat slender stemmed for a pole bean, more or less yellowish and slightly tinged with pink at stems when old, very early, of short bearing period. Leaf large-medium in size, medium green in color. Flowers white. Snap pods uniform in size, very long, fairly straight, generally turned back at stem end, flat, solid whitish yellow, of very smooth surface, very brittle, stringy, of very small fiber, of good quality, much subject to anthracnose. Point of pod medium in length and slightly curved. Green shell pods generally tinged with pink, especially at stem end and often obscurely splashed with same color, much depressed on outside between seed, about 8 inches long, and usually containing 8 seeds fairly separated in pod. Dry pods easy to thrash. Dry seeds of medium size, of medium length, flattish oval through cross section, rounded or truncate at ends, straight or slightly incurved at eye, somewhat irregular in shape, commonly bulged out or bent on one side, maroon to chocolate brown.

Comparison.—One of the lesser grown varieties, but rapidly gaining in popularity, especially at the South. Decidedly the best strictly extra early wax pole variety for home or market use. A few days later than Kentucky Wonder Pole and considerably earlier than Golden Carmine-Podded Horticultural Pole, but for a general crop bean the pure stocks of Golden Cluster Wax, Sunshine Wax, or even Golden Carmine-Podded Horticultural are more productive and longer in bearing; besides, this variety has proved in our trials to be especially subject to anthracnose, while the others mentioned were comparatively free from the disease. Most like Golden Cluster Wax, differing principally in narrower pods, smaller vines, and earlier season. Pods much larger and flatter through cross section than Kentucky Wonder, but fully as pinkish tinged at the green shell stage.

Synonyms.—Ohio Wax Pole, Prosperity Wax Pole, Salzer's Prosperity Wax Pole, Schwill's Wonderful Wax Pole.

History.—Introduced in 1901 by Johnson & Musser.

Illustrations.—Dry seeds are illustrated on Plate III, 21; cross section of snap pods on Plate V, 26, and snap pods on Plate XVI, 3.

LANDRETH'S WAX POLE.

Listed by 1 seedsman. Seeds tested: Landreth, 1905.

Description.—Vine of large growth, of good climbing habit, moderately branched, open in habit, thick stemmed, yellowish green at stems, sometimes pinkish tinged at stems when old, early, fairly productive, of moderate bearing period. Leaf large, light green. Flowers white. Snap pods somewhat variable in size, very long, generally much curved inward, always more or less zigzag from side to side, often markedly so, extremely large, flat-oval through cross section, becoming round at green shell stage, of a clear, solid whitish yellow color, of very smooth surface, very brittle, stringy, of small fiber, of good quality, fairly free from anthracnose. Point of pod long, slightly curved. Green shell pods never colored or splashed, very much sunken on outside between seeds, about 6¾ inches long, and usually containing 7 or 8 seeds, much separated in pod. Dry pods easy to thrash. Dry seeds large-medium in size, medium in length, flattish oval through cross section, generally well rounded at ends, straight or slightly incurved at eye, irregular in shape, curved on one side and bulged out on other, maize yellow in color, marked with long circular splashes of dark hazel.

Comparison.—Little known and planted. Interesting because of exceedingly thick, zigzag-shaped pods, with deep depressions between seeds, but of no real practical value, Kentucky Wonder Wax being decidedly earlier and more handsome, and pure stocks of Golden Cluster Wax far more productive, while Golden Carmine-Podded Horticultural is a better variety in every respect. Most like Kentucky Wonder Wax in both pod and plant.

History.—Introduced in 1905 by D. Landreth Seed Company.

Illustrations.—Dry seeds are illustrated on Plate III, 11; snap pods and cross section of same are similar to Kentucky Wonder Wax (Pl. XVI, 3, and Pl. V, 26, respectively,) differing principally in exceedingly zigzag shape.

MONT D'OR WAX POLE.

Listed by 11 seedsmen. Seeds tested: Thorburn, 1901, 1902, 1905.

Description.—Vine of large growth, of poor climbing habit when young, but doing well when once started, much branched, thick stemmed, generally more or less reddish tinged at stems, intermediate-late in season, heavily productive, long in bearing. Leaf of medium size, of medium green color. Flowers pink. Snap pods very uniform in size, medium in length, straight, flat, becoming roundish oval at green shell stage, solid yellow in color, of very smooth surface, brittle, stringless, without fiber, of good quality, fairly free from anthracnose. Point of pod long and slightly curved. Green shell pods generally faintly purplish, splashed and tinged in places when old, moderately depressed on outside between seeds, about 5¼ inches long, and usually containing 8 seeds crowded in pod. Dry seeds medium in size, proportionally short, oval through cross section, rounded or truncate at ends, rounded or straight at eye, madder brown to pansy violet.

Comparison.—Little known or planted. Probably the best late wax pole variety. Earlier in season, but not quite so productive nor as vigorous a grower as Indian Chief. Excellent as snaps for home or market, but not nearly so desirable for green or dry shell beans as Golden Carmine-Podded Horticultural and most green-podded pole varieties. Most like Indian Chief, differing principally in earlier season, flatter, and straighter pods, which are very similar to those of Currie's Black Wax Bush.

History.—Listed by seedsmen in this country at least since 1885.

Illustrations.—Dry seeds are illustrated on Plate II, 15; snap pods and cross section of same are similar to Currie's Rustproof Wax Bush (Pl. VIII, 1, and Pl. V, 10, respectively).

SUNSHINE WAX POLE.

Listed by 1 seedsman. Seeds tested: Burpee, 1904, 1906.

Description.—Vine of large growth, of good climbing habit, moderately branched, thick stemmed, usually yellowish green at stems, occasionally slightly reddish tinged in places, late, heavily to moderately productive, long in bearing. Leaf large, light green. Flowers white. Snap pods somewhat variable in size, very long, fairly straight, very flat, of a clear, solid whitish yellow color, of very smooth surface, very brittle, stringy, of small fiber, of good quality, fairly free from anthracnose. Point of pod long, slightly curved. Green shell pods often slightly reddish tinged, without black lines along sutures, much sunken on outside between seeds, about 7⅛ inches long, and usually containing 8 seeds fairly separated in pod. Dry pods easy to thrash. Dry seeds of medium size, proportionally short, flattish oval through cross section, truncate or rounded at ends, straight at eye, solid purplish brown.

Comparison.—Little known and planted. Same general value and usefulness as Golden Cluster Wax, and more like it than any other; but being smaller podded, later, and dark instead of white seeded it is not nearly as valuable as the pure stock of that variety. Very similar also to Kentucky Wonder Wax, differing principally in season, larger growth, and wider, flatter pods.

History.—Introduced in 1890 by W. Atlee Burpee & Co., who write that the seed was obtained on Long Island about 1887.

Illustrations.—Dry seeds are illustrated on Plate I, 22; cross section of snap pods are same as Golden Cluster Wax (Pl. V, 27); snap pods are very similar to Kentucky Wonder Wax (Pl. XVI, 3), differing principally in being wider and flatter.

CATALOGUE OF VARIETY NAMES.

The following list includes nearly all the garden beans catalogued to-day in America, the only omissions being a few kinds listed by little-known seedsmen, certain varieties of only local name, and some field sorts known only to the produce trade. The list embraces both distinct and subsidiary varieties, the former, as already explained, being represented by names signifying distinct types and the latter by names signifying other so-called varieties, or sorts, which upon trial have been found to be strains or duplicates of the distinct types, or, at least, so closely resembling them as to be practically identical.

The variety names of this list indicate in every case whether the sorts are pole, Lima, wax, or field beans, the word pole being included on all pole sorts, Lima on Lima sorts, wax on all wax sorts, and field on all field sorts. After each name is given the number of seedsmen who listed the variety in 1906. In case a name is so similar to some other as to leave no doubt that it refers to that name, then the seedsmen using such a name have been counted with those listing the preferred name; for instance, all seedsmen listing Extra Early Red Valentine, Early Red Valentine, and Cleveland's Red Valentine have been counted with those listing Red Valentine instead of each being listed separately. The seedsmen mentioned after these data are those from whom seed was obtained and upon whose samples the descriptions are largely based.

Adams's Everbearing Cluster Butter Pole Lima. (Listed by 1 seedsman. Seeds tested: Steckler, 1905, 1906.) Same as Small White Pole Lima. Apparently first listed in 1902 by J. Steckler Seed Company.

Admiral Togo. (Listed by 1 seedsman. Seeds tested: Isbell, 1906.) Same as Currie's Black Wax. First named and introduced in 1906 by S. M. Isbell & Co.

Algerian Wax Pole. (Listed by 1 seedsman.) A name applied by Alfred Bridgeman to Indian Chief Wax Pole.

Allan's Imperial Wax. (See p. 91.)

American Sickle Pole. (Listed by 1 seedsman. Seeds tested: Philips, 1905.) Same as Kentucky Wonder Pole and very different from White Sickle Pole of other seedsmen. First listed in 1891 by J. M. Philips's Sons as Philips's American Sickle Pole.

Andalusia Wax Pole. (See p. 128.)

Archias's Improved Kentucky Wonder Pole. (Listed by 1 seedsman.) Same as Kentucky Wonder Pole.

Arlington Red Cranberry Pole. (See p. 113.)

Aroostook Bush Lima. (See p. 39.)

Asparagus Pole. (Listed by 9 seedsmen.) A name sometimes applied to Yard Long Pole.

Banner Leafless Field Bean. (Listed by 1 seedsman. Seeds tested: Isbell, 1905.) Same as Navy Pea. Apparently first listed in seedsmen's catalogues by the former firm of Harry N. Hammond Seed Company, but name probably in use among farmers several years before this date.

Barteldes's Bush Lima. (See p. 40.)

Bayo Field Bean. (Not listed in seed catalogues. Seeds tested: Braslan, 1905, 1906.) This is a very large, late, semirunning field variety, extensively planted in the Sacramento Valley region of California, but possibly too late in season for growing in the East. Enormous crops are obtained in California, the yields far surpassing those obtained from field varieties grown in New York and Michigan. Wickson states there are two types, one of which is small-seeded, and known as Bayo Grande and the other large-seeded and known as Bayo Chico. The seed is said to have been brought to California from Chile about 1849. Seed of the variety is shown on Plate II, 10.

Bell's Giant Stringless Green Pod. (Listed by 1 seedsman. Seeds tested: Bell, 1906.) Same as Giant Stringless Green Pod. First listed by J. J. Bell in 1906.

Bell's Prolific Green Pod. (Listed by 1 seedsman. Seeds tested: Bell, 1905.) Same as Burpee's Stringless Green Pod. First listed in 1903 by J. J. Bell.

Best of All Bush. (See p. 54.)

Best of All Early Market Bush. (Listed by 3 seedsmen. Seeds tested: J. Bolgiano, 1905; Moore & Simon, 1905.) Same as Extra Early Refugee. First listed in 1895 by Moore & Simon.

Best of All Pole. (Listed by 5 seedsmen.) A name sometimes applied to White Creaseback Pole.

Big Sioux Pole. (Listed by 1 seedsman.) A name sometimes applied to Concord Pole.

Bismarck Black Wax. (See p. 91.)

Bismarck Great German Soup Field Bean. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1905.) Same as Navy Pea. First listed in 1905 by Moore & Simon.

Black Algerian Wax Pole. (No longer listed by American seedsmen.) A name formerly applied to the variety more recently listed as Indian Chief Wax Pole.

Black-Eyed Wax. (See p. 92.)

Black Kentucky Wonder Pole. (See p. 114.)

Black Spanish Field Bean. (No longer listed by American seedsmen.) A name formerly applied to Black Turtle Soup.

Black Turtle Soup Field Bean. (See p. 55.)

Black Valentine. (See p. 55.)

Black Wax Bush. (Listed by 109 seedsmen. Seeds tested: Thorburn, 1902.) Same as German Black Wax Bush.

Black Wax Pole. (Listed by 51 seedsmen. Seeds tested: Thorburn, 1905.) Described by most seedsmen to be same as Indian Chief Pole; but in samples received here for trial the two varieties were somewhat different, the Black Wax Pole being about five days later or about same season as Andalusia Wax Pole and its pods decidedly straighter, somewhat flatter, and more depressed between beans than Indian Chief, while its seeds were deep violet or bluish black in color. Pods apparently same as Arlington Red Cranberry Pole except in color. The variety was one of the first cultivated wax beans, having been known in this country under this name or as German Black Wax at least since 1863.

Bliss's Extra Early Pole Lima. (Listed by 1 seedsman.) Same as Extra Early Jersey Lima. A name formerly in general use but now omitted from most seed lists. Introduced in 1878 by the former firm of B. K. Bliss & Son.

Blue Lake Creaseback Pole. (Listed by 3 seedsmen. Seeds tested: Cox, 1905.) Same as White Creaseback Pole. First listed in 1903 by Cox Seed Company.

Blue Pod Butter. (See p. 56.)

Blue Pod Field. Not listed by seedsmen, but known to the produce trade of the East and grown to some extent in New York State. Very different from Blue Pod Butter of W. Atlee Burpee & Co.

Bolgiano's Early May Queen. (Listed by 1 seedsman. Seeds tested: Bolgiano, 1905.) Same as Extra Early Refugee. Introduced in 1905 by J. Bolgiano & Son.

Bolgiano's Sunshine Bush Wax. (Listed by 1 seedsman. Seeds tested: Bolgiano, 1905.) Same as Golden-Eyed Wax. An apparently recent introduction of J. Bolgiano & Son.

Bolgiano's Wax. (Listed by 1 seedsman. Seeds tested: F. Bolgiano, 1905.) Same as stringless type of Refugee Wax. First listed in 1902 by F. W. Bolgiano & Co.

Boston Favorite. (See p. 57.)

Boston Navy Field Bean. (Listed by 1 seedsman.) A name sometimes applied to Navy Pea.

Boston Pea Field Bean. (Listed by 17 seedsmen. Seeds tested: Burpee, 1901; Keeney, 1906; Johnson & Stokes, 1897.) Same as Navy Pea. Apparently first listed about twenty years ago.

Boston Yellow Eye Wax-Podded. (Listed by 1 seedsman. Seeds tested: Bolgiano, 1905.) Same as Golden-Eyed Wax, but quite different from the green-podded varieties known as Yellow Eye and Improved Yellow Eye. Named in 1905 by F. H. Ebeling.

Bountiful. (See p. 57.)

Breck's Boston Snap. (Listed by 1 seedsman. Seeds tested: Breck, 1905.) Same as Bountiful. First listed in 1904 by Joseph Breck & Sons. Described as a sport from Long Yellow Six Weeks.

Breck's Dwarf Horticultural. (Listed by 1 seedsman. Seeds tested: Breck, 1906.) Same as Boston Favorite and quite different from Dwarf Horticultural of other seedsmen. Listed by Joseph Breck & Sons at least since 1887.

Breck's String and Shell. (Listed by 1 seedsman. Seeds tested: Breck, 1902, 1905.) Same as Best of All Bush and consisting mostly of the round-podded type of that variety. Introduced in 1900 by Joseph Breck & Sons.

Brittle Wax. (Listed by 6 seedsmen. Seeds tested: Burpee, 1904; Keeney, 1904, 1906.) Same as Round Pod Kidney Wax. Introduced in 1902 by W. Atlee Burpee & Co., who state the bean originated with N. B. Keeney & Son, of Leroy, N. Y.

Broad Windsor. (See p. 37.)

Brockton Pole. (See p. 114.)

Brown Six Weeks. (Listed by 2 seedsmen.) A name frequently used prior to 1870 for Mohawk and occasionally so used by seedsmen at the present time.

Brown Speckled Valentine. (Listed by 2 seedsmen.) A name occasionally applied to Refugee.

Brown Swedish Field Bean. (See p. 58.)

Buckbee's Early Wonder Bush. (Listed by 1 seedsman. Seeds tested: Buckbee, 1905.) Same as Red Valentine. First listed in 1900 by H. W. Buckbee as Buckbee's Early Wonder Bush.

Buist's Early Lightning Valentine. (Listed by 1 seedsman. Seeds tested: Buist, 1905.) Same as Red Valentine. Introduced in 1890 by Robert Buist Seed Company.

Burger's Stringless Pole. (See p. 115.)

Burlingame Medium Field Bean. (Listed by 7 seedsmen. Seeds tested: Gregory, 1905.) A field bean of similar habit to Day's Leafless Medium. Originated about 1896 in Genesee County, N. Y.

Burpee's Bush Lima. (See p. 42.)

Burpee's Kidney Wax. (See p. 92.)

Burpee's Quarter Century Bush Lima. Same as Quarter Century Bush Lima or Wonder Bush Lima.

Burpee's Stringless Green Pod. (See p. 58.)

Burpee's White Wax. (See p. 93.)

Burpee's Willow-Leaved Bush Lima. Same as Willow-Leaved Bush Lima.

Bush Multiflora. (Not included in American seed catalogues. Apparently grown only by 1 seed grower. Seeds tested: Edward Evans, 1905, 1906.) Almost identical with Barteldes's Bush Lima, differing only in being about four days earlier, of smaller growth, and is probably more satisfactory for growing in the East and North than Barteldes's Bush Lima. Named and introduced in 1904 by Edward E. Evans, of West Branch, Mich.

Butter Bush Lima. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904.) This name is generally used in the South in referring to the whole class of Lima beans but the above seedsmen have in this instance used it as a variety name since 1903 for Henderson's Bush Lima.

Butter Pole Lima. (Listed by 10 seedsmen.) A name applied in the South to the whole class of Lima beans, but sometimes very loosely used to designate variety names of various types of Limas, including the small-seeded, large-seeded, and potato-seeded sorts.

Butter Wax. (Listed by 19 seedsmen.) A very ambiguous name, sometimes used by gardeners to designate yellow-podded or wax varieties, but also loosely applied by some seedsmen as a variety name to designate certain types or varieties of these beans.

Byer's Bush. (See p. 59.)

Cabbage Wax. (Listed by 1 seedsman.) A name applied by T. W. Wood & Sons to Crystal Wax.

California Black Wax. (Listed by 6 seedsmen. Seeds tested: Tait, 1905.) Same as Currie's Rustproof Wax. First listed in 1902 by George Tait & Sons, who state it to be a selection of Currie's Rustproof Wax.

California Branch Field Bean. (Listed by 4 seedsmen. Seeds tested: Iowa Seed Company, 1905.) Same as Navy Pea. Apparently first listed in 1883 by James J. H. Gregory & Son.

California Butter. (Listed by 1 seedsman. Seeds tested: Haines, 1905, 1906; Lee Pioneer, 1904.) Same as Barteldes's Bush Lima. Apparently a local name.

California Pea Field Bean. (Listed by 2 seedsmen.) A name sometimes applied to Navy Pea or California Branch.

California Rustproof Wax. (Listed by 6 seedsmen. Seeds tested: Moore & Simon, 1904.) Same as Currie's Rustproof Wax. First listed in 1893 by Moore & Simon.

California Tree Field Bean. (Listed by 4 seedsmen.) A name sometimes applied to Navy Pea or California Branch.

California Wonder Field Bean. (Listed by 2 seedsmen. Seeds tested: Northrup, King & Co., 1905.) Same as Navy Pea. Introduced in 1898 by Northrup, King & Co.

Canadian Wonder. (See p. 60.)

Canavalia ensiformis. This species has never been listed by American seedsmen, but according to L. H. Bailey the plant is a tropical species and quite widely cultivated. It is fully described in Bulletin No. 115 of the Cornell University Agricultural Experiment Station, where it is stated that the species has become generally distributed throughout the Southern States during the past few years and commonly known there as Jack bean and sometimes as Chickasaw Lima and Horse bean. Its seeds are similar in shape to those of Bush Multiflora or Barteldes's Bush Lima, illustrated on Plate IV, 25. The vines ripen too late to be of value in the North and the variety is apparently of limited usefulness even in the South.

Carmine-Podded Horticultural Bush. (Listed by 2 seedsmen. Seeds tested: Gregory, 1906.) Same as Ruby Horticultural Bush. First named and introduced in 1888 by James J. H. Gregory & Son.

Carolina Bush Lima. Not listed by seedsmen, but sometimes applied by gardeners to Henderson's Bush Lima.

Carolina Pole Lima. (Listed by 22 seedsmen. Seeds tested: Johnson & Stokes, 1897.) Same as Small White Pole Lima. Known by this name for over one hundred years.

Carolina Sewee Pole Lima. Not listed by American seedsmen, but sometimes applied by gardeners to Carolina Pole Lima or Small White Pole Lima.

Challenge Black Wax. (See p. 93.)

Challenger Bush Lima. Not listed by seedsmen, but sometimes applied by gardeners to Dreer's Bush Lima.

Challenger Pole Lima. (Listed by 34 seedsmen. Seeds tested: Burpee, 1897; Dreer, 1900; Ferry, 1903, 1906; Fish, 1903, 1905; Thorburn, 1901, 1903, 1905.) Same as Dreer's Pole Lima. Introduced about 1882 by J. M. Thorburn & Co. It seems to have first attracted the attention of John M. Kumerle, of Newark, N. J., who writes the seed was obtained by him from Mr. V. J. Hedden, of East Orange, in whose family it had been for many years. Introduced as an improvement in size of pod over Dreer's Pole Lima, but at the present day seedsmen's stocks of the two kinds are commonly the same, the old smaller stock of Dreer's Pole Lima having been dropped and the larger podded Challenger used in its place.

Cherry Pole. (Listed by 3 seedsmen.) A name sometimes loosely applied to London Horticultural, but very objectionable because so often mistaken as referring to White Cherry, better known as Lazy Wife Pole.

Chickasaw Lima. A field or fodder bean, unfit for table use, and never listed by American seedsmen. Same as *Canavalia ensiformis*, previously described, and not strictly a Lima.

Childs's Extra Early Pole Lima. (Listed by 1 seedsman. Seeds tested: Childs, 1905.) Same as White Dutch Runner Pole. Introduced in 1903 by John Lewis Childs, who writes the variety originated with R. H. Palmer, of Kennedy, N. Y.

Childs's Horticultural Pole. (See p. 115.)

Chilean Field Bean. (Listed by 1 seedsman.) A name applied by Frank S. Platt Company to Red Kidney and quite different from the white-seeded pea bean sometimes sold as Chilean and Chilean Pea.

Chilean Pea Field Bean. Apparently not listed by American seedsmen, but occasionally found in local markets. A late type of field pea bean, quite similar to Lady Washington.

China Red Eye. (See p. 60.)

Concord Pole. (See p. 116.)

Cornfield Pole. (Listed by 9 seedsmen.) A name sometimes applied to Corn Hill Pole or Speckled Cut Short Pole.

Corn Hill Pole. (Listed by 41 seedsmen. Seeds tested: Ferry, 1898, 1900; Thorburn, 1901.) Same as Speckled Cut Short Pole. One of the oldest sorts now listed by American seedsmen. Probably the same as Corn bean, listed by American seedsmen about 1835.

Cranberry Pole. (Listed by 21 seedsmen.) A name loosely applied by some seedsmen to Speckled Cranberry or London Horticultural Pole.

Cream Valentine. (See p. 61.)

Crimson Beauty. (See p. 61.)

Crimson Flageolet Wax. (Listed by 5 seedsmen. Seeds tested: Keeney, 1904, 1906.) Same as Scarlet Flageolet Wax. For history see Scarlet Flageolet Wax and Purple Flageolet Wax.

Crystal Wax. (See p. 94.)

Cuban Asparagus Pole. (Listed by 7 seedsmen.) Same as Yard Long Pole.

Currie's Black Wax. Often used by seedsmen to designate Currie's Rustproof Wax.

Currie's Golden Wax. A name sometimes applied to Currie's Rustproof Wax.

Currie's Rustproof Wax. (See p. 94.)

Cut Short Pole. A name sometimes applied to Speckled Cut Short Pole.

Cylinder Black Wax. (Listed by 2 seedsmen.) Same as Prolific Black Wax. Introduced in 1889 by Peter Henderson & Co. Same origin as Prolific Black Wax.

Dallas Bush Lima. Not listed by seedsmen, but known locally in parts of Texas. Reported by Texas State Experiment Station to be same as Dreer's Bush Lima.

Davis Wax. (See p. 95.)

Day's Leafless Medium Field Bean. (See p. 62.)

Detroit Wax. (See p. 96.)

Dolichos sesquipedalis. The scientific name formerly applied to Yard Long Pole. Now known to botanists as *Vigna sesquipedalis* and to gardeners as French Yard Long, Asparagus Pole, Cuban Asparagus Pole, and Long-Podded Dolichos.

Double-Barrel Wax. (See p. 96.)

Dreer's Bush Lima. (See p. 42.)

Dreer's Pole Lima. (See p. 46.)

Dreer's Wonder Bush Lima. Same as Wonder Bush Lima.

Dutch Case Knife Pole. (See p. 116.)

Dwarf Case Knife. (Listed by 1 seedsman. Seeds tested: Kendel, 1906.) Name used in this country at least since 1865 and applied at that time to Dwarf Saber, but recently readopted by A. C. Kendel, who in 1904 applied it to Emperor William.

Dwarf Cherry. (Listed by 3 seedsmen.) A name sometimes applied to Dwarf Horticultural or Ruby Horticultural Bush.

Dwarf Cranberry. (Listed by 3 seedsmen.) A name sometimes applied to Dwarf Horticultural or Ruby Horticultural Bush.

Dwarf Horticultural. (Listed by 100 seedsmen. Seeds tested: Burpee, 1903; Ferry, 1898, 1900; Keeney, 1904, 1905, 1906; Thorburn, 1901, 1902, 1906.) The original late running type of this bean as grown in this country prior to 1875 has apparently disappeared from general cultivation. The improved strain now known as Ruby Horticultural Bush, which is decidedly earlier, more bushy, and more brilliantly splashed, is now used in filling orders for this variety. Cultivated under this name at least since 1845.

Dwarf Red Cranberry. (Listed by 3 seedsmen. Seeds tested: Breck, 1905.) As received from above seedsmen, this variety was same as Low's Champion, which is probably not the same type as that known in this country about 1880 and earlier. Listed by seedsmen at least since 1820, and one of the oldest variety names.

Dwarf White Cranberry. (No longer listed by seedsmen.) A name formerly applied to White Marrow.

Earliest Green Pod. (Listed by 1 seedsman. Seeds tested: Hammond, 1904; Isbell, 1906.) Same as Best of All Bush and composed almost wholly of the flat-podded type. First listed in 1902 by Harry N. Hammond Seed Company.

Earliest Market. (See p. 62.)

Early Aroostook Field Bean. (See p. 63.)

Early Black Pole Lima. (No longer used, or at least not now listed by seedsmen.) Introduced in 1892 by W. Atlee Burpee & Co., and described as wonderfully productive, of fine quality, and as earliest of all Limas.

Early Carmine-Podded Dwarf Horticultural. (Listed by 2 seedsmen. Seeds tested: Gregory, 1897, 1905.) Same as Ruby Horticultural Bush. Introduced in 1888 by James J. H. Gregory & Son.

Early Erfurt Dwarf Prolific Broad. (Listed by 1 seedsman. Seeds tested: Iowa, 1905.) A variety of English Broad bean, first listed in 1902 by Iowa Seed Company. Said to be earlier, more productive, and more drought resisting than the variety commonly sold in this country as Broad Windsor. Our trials showed no differences in these respects, but our results are of little importance, as the plants were grown only in New York and Virginia, which sections are unsuited to this class of beans. The variety might be given a more suitable test if grown in cooler weather or in a cooler climate, such as along the Pacific coast or in the South during winter.

Early Giant Advance Pole. (See p. 117.)

Early Golden Cluster Wax Pole. (Listed by 66 seedsmen.) Same as Golden Cluster Wax Pole.

Early Long-Podded Broad Bean. (Listed by 4 seedsmen.) A variety of English Broad bean, known to botanists as *Vicia faba.*

Early May Queen. (Listed by 1 seedsman. Seeds tested: J. Bolgiano, 1905.) Same as Extra Early Refugee. Introduced in 1905 by J. Bolgiano & Son.

Early Mazagan Broad Bean. (Listed by 6 seedsmen.) A variety of English Broad or Horse bean, known to botanists as *Vicia faba.*

Early Minnesota Field Bean. (Listed by 1 seedsman. Seeds tested: Farmer, 1905.) Same as Navy Pea. Introduced in 1905 by the Farmer Seed Company, who state the variety originated with a farmer in Rice County, Minn.

Early Mohawk Six Weeks. (Listed by 5 seedsmen.) A name sometimes applied to Mohawk.

Early Wonder Bush. (Listed by 1 seedsman. Seeds tested: Buckbee, 1905.) Same as Red Valentine. First listed in 1900 by H. W. Buckbee as Buckbee's Early Wonder Bush.

Early Wonder Pole. (Listed by 1 seedsman. Seeds tested: Page, 1905.) Same as Kentucky Wonder Pole. Apparently first listed some six years ago by Page Seed Company.

Eldorado Wax. (Listed by 1 seedsman. Seeds tested: Tait, 1902, 1905.) Same as Currie's Rustproof Wax. Introduced in 1901 by George Tait & Sons, who state it to be a selection from Currie's Rustproof Wax, made with the object of eliminating rust and increasing earliness.

Elgin White Wonder Wax. (Listed by 1 seedsman. Seeds tested: Elgin, 1905.) Same as Davis Wax. A recent introduction of Elgin Seed Company.

Elliott's Bush Lima. (Listed by 1 seedsman. Seeds tested: Elliott, 1905.) Same as Burpee's Bush Lima. First listed in 1905 by Wm. Elliott & Sons.

Elliott's Improved Pole Lima. (Listed by 1 seedsman. Seeds tested: Elliott, 1905.) Same as Dreer's Pole Lima. Introduced in 1905 by Wm. Elliott & Sons.

Emerald Beauty. (Listed by 1 seedsman. Seeds tested: J. Bolgiano, 1905.) Same as Longfellow. A recent introduction of J. Bolgiano & Son.

Emerson's Pea Field Bean. (Listed by 1 seedsman. Seeds tested: Emerson, 1904.) Test too incomplete for making a positive indentification, but variety is similar to Navy Pea, Prolific Pea, and Chilean Pea, and possibly identical with one of them.

Emperor of Russia. (Listed by 1 seedsman. Seeds tested: Thorburn, 1901, 1902.) Same as Longfellow. Introduced in 1901 by J. M. Thorburn & Co., who describe it as a new French variety.

Emperor William. (See p. 63.)

English Broad Horse Bean. (Listed by 9 seedsmen.) A name sometimes applied in this country to Broad Windsor, known to botanists as *Vicia faba.*

English Lima Horse Bean. (Listed by 1 seedsman.) A name applied by Henry Field to a variety of the English Broad bean known to botanists as *Vicia faba.*

English Stringless. (Listed by 1 seedsman.) A name applied by Moore & Simon to Moore's Newington Wonder, more generally known as Giant Stringless Green Pod.

Epicure Wax. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1902, 1904.) Same as stringy type of Refugee Wax. Introduced in 1895 by Moore & Simon, who state the variety came from a farmer in the vicinity of Wilmington, Del.

Eureka Field Bean. (See p. 64.)

Everbearing. (See p. 65.)

Evergreen Pole Lima. (Listed by 1 seedsman. Seeds tested: Maule, 1906.) Trial too poor to describe type fully, but evidently a selection or a new type similar to King of Garden. Introduced in 1906 by William Henry Maule, who states the variety was selected by a gardener near Philadelphia with a view to retaining green color of dry seed, thereby giving the cooked beans the appearance of being fresh from the garden.

Excelsior Refugee. (Listed by 1 seedsman. Seeds tested: Hastings, 1905.) Same as Extra Early Refugee. A recent introduction of H. G. Hastings & Co.

Extra Early Horticultural Pole. (See p. 117.)

Extra Early Jersey Pole Lima. (See p. 47.)

Extra Early Pole Lima. (Listed by 1 seedsman. Seeds tested: Childs, 1905.) Same as White Dutch Runner Pole. Introduced in 1905 by John Lewis Childs, who states the variety originated with R. H. Palmer, Kennedy, N. Y.

Extra Early Refugee. (See p. 65.)

Fat Horse Pole. (Listed by 15 seedsmen.) A name sometimes applied to White Creaseback Pole.

Ferry's Golden Wax. Same as Golden Wax. Introduced in 1876 by D. M. Ferry & Co.

Field's First Early. (Listed by 1 seedsman. Seeds tested: Field, 1906.) Same as Tennessee Green Pod. Introduced in 1906 by Henry Field.

First in Market. (Listed by 2 seedsmen. Seeds tested: Landreth, 1906.) Probably same as Emperor William. Introduced in 1883 by D. Landreth Seed Company as Landreth's First in Market.

Flageolet Wax. (Listed by 23 seedsmen.) When first introduced into this country from Germany, about 1880, this variety was composed of light and dark colored seed, but since its introduction the two colors have been separated into a dark-colored type now known as Violet or Purple Flageolet Wax and a light-colored type now known as Scarlet or Crimson Flageolet Wax. There are many stocks which still contain both kinds of seed, and the name Flageolet Wax may signify either the dark or light colored types.

Florida Butter Pole Lima. (See p. 47.)

Ford's Mammoth Pole Lima. (See p. 48.)

French Asparagus Pole. (Listed by 2 seedsmen.) A name applied to Yard Long Pole.

French Flageolet. (See p. 66.)

French Kidney Field. (See p. 66.)

French Lead Pencil. (Listed by 1 seedsman. Seeds tested: Noll, 1906.) Same as Longfellow. Introduced in 1902 by J. F. Noll & Co.

French Market. (Listed by 1 seedsman. Seeds tested: Schindler, 1905.) Same as Longfellow. Introduced in 1903 by Joseph A. Schindler & Co.

French Mohawk. (See p. 67.)

French Stringless. (Listed by 2 seedsmen. Seeds tested: Moore & Simon, 1902, 1904.) Same as Longfellow. Introduced in 1900 by Moore & Simon, who write the variety came from France.

French Yard Long Pole. Same as Yard Long Pole.

Frost Pole Lima. (Listed by 1 seedsman.) A name applied by James J. H. Gregory & Son to Small White Pole Lima.

Fuller's Black Wax. (Listed by 2 seedsmen.) Seeds tested: Gregory, 1898.) Same as German Black Wax. First listed by American seedsmen about 1896.

Fuller's Ringleader Wax. (Listed by 1 seedsman. Seeds tested: Gregory, 1904; Johnson & Stokes, 1897, 1904, 1906.) Same as German Black Wax. Introduced in 1896 by Johnson & Stokes.

Galega. (See p. 67.)

Galega Refugee. (No longer listed by American seedsmen. Seeds tested: Thorburn, 1903, 1905.) A name formerly applied by Thorburn and Rawson to Galega.

Garden Pride. (See p. 68.)

Genter's Sulphur Field Bean. Not listed by seedsmen, but sometimes applied in certain local markets to Eureka.

Georgia Monstrous Pole. (Listed by 1 seedsman. Seeds tested: Curry-Arrington Co., 1905.) Same as Kentucky Wonder Pole. Name apparently never recognized except by above seedsmen, who have listed the variety at least since 1898.

German Black Wax Bush. (See p. 97.)

German Black Wax Pole. (Listed by 51 seedsmen.) A name applied by some seedsmen to Black Wax Pole or Indian Chief Pole.

German Prolific Black Wax. A name sometimes applied to Prolific Black Wax.

German Soup. (Listed by 1 seedsman.) Classed by John A. Salzer Company with garden beans, but really nothing more than a cowpea. First listed in 1901 by John A. Salzer Seed Company as Salzer's Great German Soup.

German White Wax. (No longer listed by American seedsmen.) Popular about 1885, and then known also as White Wax, but now largely out of cultivation. Plants small, low growing, and very bushy. Pods very stringy, short, flat, but thick, and generally greenish tinged; seeds solid white and somewhat like White Marrow in shape. The variety now known as Burpee's White Wax is quite different from this type and a decided improvement over the old White Wax in size and quality of pods.

Giant Dwarf Wax. (Listed by 2 seedsmen. Seeds tested: Steele, Briggs & Co., 1902, 1905.) Same as Scarlet Flageolet Wax. Apparently introduced by Steele, Briggs & Co., by whom it has been listed at least since 1894.

Giant Forcer. (See p. 69.)

Giant Stringless Green Pod. (See p. 69.)

Giant Valentine. (Listed by 28 seedsmen. Seeds tested: Rogers, 1906.) Same as Giant Stringless Green Pod. Introduced in 1898 by Johnson & Stokes as Giant Stringless Green Pod Valentine. The variety more resembles a giant form of Burpee's Stringless Green Pod than it does one of Valentine, and hence the more general use of the name Giant Stringless Green Pod.

Goddard. (Listed by 33 seedsmen. Seeds tested: Keeney, 1906; Rawson, 1897.) Same as Boston Favorite. Named and introduced some time after the introduction of that variety in 1885. The variety commonly sold as Improved Goddard is generally distinct from that commonly sold as Goddard and Boston Favorite.

Gold and Carmine Pole. (Listed by 1 seedsman. Seeds tested: Everitt, 1905.) Same as Golden Carmine Podded Horticultural Pole. Introduced in 1905 by J. A. Everitt Seed Company.

Golden Andalusia Wax Pole. A name sometimes applied to Andalusia Wax Pole.

Golden Beauty Wax. (See p. 97.)

Golden Carmine-Podded Horticultural Wax Pole. (See p. 128.)

Golden Champion Wax Pole. (See p. 129.)

Golden Cluster Wax Pole. (See p. 129.)

Golden Crown Wax. (See p. 98.)

Golden-Eyed Wax. (See p. 98.)

Golden Jersey Wax. (Listed by 1 seedsman. Seeds tested: Lilly, 1905.) Same as Improved Golden Wax. Introduced in 1904 by Lilly, Bogardus & Co., the predecessors of Charles H. Lilly Company. Described by introducers as an improvement on Golden Wax.

Golden Lazy Wife Wax Pole. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904, 1905.) Same as Andalusia Wax Pole. Introduced in 1889 by the former Samuel Wilson Company.

Golden Pole Lima. (No longer listed by American seedsmen. Seeds tested: Buckbee, 1897, 1900.) Introduced in 1897 by H. W. Buckbee as Buckbee's Golden Pole Lima, but now dropped by the seed trade. The yellowish color of its dry seeds is quite different from that of other varieties. Pods similar to those of large White Pole Lima. Variety is of no real merit.

Golden Refugee. (See p. 70.)

Golden Scimiter Wax. (Listed by 1 seedsman. Seeds tested: Henderson, 1904, 1905.) Same as Pencil Pod Black Wax. Introduced in 1903 by Peter Henderson & Co., who write the variety came from Genesee County, N. Y.

Golden Wax. (See p. 99.)

Great Northern Field Bean. (Listed only by Oscar Will Seed Company, and described as a kidney-shaped, white-seeded field bean.

Great Western Field Bean. (Listed by 1 seedsman. Seeds tested: Everitt, 1905.) Same as White Marrow. Introduced in 1897 by J. A. Everitt Seed Company.

Green Gem. (No longer listed by American seedsmen.) A name formerly applied to Wonder of France.

Green Mazagan Horse Bean. (Listed only by Alfred Bridgeman.) Described as a variety of English Horse bean known to botanists as *Vicia faba.*

Green Nonpareil Horse Bean. (Listed only by Alfred Bridgeman.) Described by Bridgeman as a variety of English Horse bean, but at one time used to designate a variey of bush Kidney bean.

Green-Seeded Flageolet. (Listed by 5 seedsmen. Seeds tested: Thorburn, 1905, 1906.) Same as Wonder of France. A French variety which has been listed at various times by American seedsmen since 1880.

Green's Golden German Wax. (Listed by 1 seedsman. Seeds tested: Green, 1905.) Same as Improved Golden Wax. Introduced in 1905 by E. C. Green & Co.

Green's Large-Seeded Mastodon Pole Lima. (Listed by 1 seedsman. Seeds tested: Burpee, 1906.) Trial too incomplete to fully describe type, but variety is evidently a very fine selection of Salem Mammoth and probably deserving recognition as an entirely new and distinct sort. Appeared in our trials to be of same class as Salem Mammoth, but much larger podded, more even, and more productive than that variety. The decidedly curved pods are apparently characteristic of the type. Introduced in 1905 by W. Atlee Burpee & Co., who write the variety originated with a Mr. Green, of Woodbury, N. J.

Grenell's Improved Golden Wax. (Listed by 13 seedsmen.) Seeds tested: Grenell, 1905; Keeney, 1906.) Same as Improved Golden Wax. Introduced about eighteen years ago by several American seedsmen. Originated by W. H. Grenell, of Pierrepont Manor, N. Y.

Grenell's Rustproof Wax. (Listed by 13 seedsmen. Seeds tested: Ferry, 1902.) Same as Improved Golden Wax. Introduced about eighteen years ago by several American seedsmen. Originated by W. H. Grenell, of Pierrepont Manor, N. Y.

Grenell's Stringless Green Pod. (See p. 70.)

Griswold's Everbearing Wax. (Listed by 1 seedsman. Seeds tested: Hastings, 1905.) Same as German Black Wax, but probably a different type as introduced by American seedsmen about 1875.

Gunkler. (Listed by 1 seedsman.) A name used by German gardeners near Rochester for Vick's Prolific Pickler.

Hammond's Luscious Stringless Wax. (No longer listed by American seedsmen. Seeds tested: Hammond, 1904.) Same as Jones's Stringless Wax. Introduced in 1904 by the former firm of Harry N. Hammond Seed Company.

Hampton Pole. (Listed by 3 seedsmen.) A name sometimes applied to Worcester Mammoth Pole.

Harlington Windsor Horse Bean. (Listed by 1 seedsman.) Described by Steele, Briggs Seed Company as a variety of English Broad or Horse bean known to botanists as *Vicia faba.*

Hemisphere Pole. (Listed by 1 seedsman. Seeds tested: Plant, 1902.) Same as Concord Pole. Introduced in 1896 by Sioux City Seed Company.

Henderson's Bush Lima. (See p. 43.)

Henderson's Full Measure. (See p. 71.)

Henderson's Ideal Pole Lima. (See p. 48.)

Henderson's Improved Bush Lima. (Listed by 4 seedsmen. Seeds tested: Henderson, 1904, 1905, 1906.) Same as Wood's Prolific Bush Lima. Introduced in 1901 by Peter Henderson & Co.

Henderson's Market Wax. (See p. 100.)

Hodson Green Pod. (See p. 71.)

Hodson Wax. (See p. 100.)

Holmes's Improved Sickle Pole. (Listed by 1 seedsman. Seeds tested: Holmes, 1904, 1905.) Same as Tennessee Wonder Pole. Introduced in 1903 by Holmes Seed Company, who write the seed was obtained in Lebanon County, Pa., where it is known as Old Time Sickle Bean.

Hopkins's Everbearing Giant Wax. (Listed by 1 seedsman. Seeds tested: Hopkins, 1904.) Same as Yosemite Wax. Introduced in 1900 by Carl S. Hopkins Seed Company.

Hopkins's Red Valentine. (Listed by 14 seedsmen. Seeds tested: Allan, 1903; J. Bolgiano, 1905; Burpee, 1903; Keeney, 1906.) Considerable difference of opinion prevails as to the identity of this variety. It is sometimes claimed to be a larger, more vigorous plant, and to bear larger, not quite so fleshy pods as the regular stock of Red Valentine, but in our trials it has not always shown these differences and usually appears to be the same as Red Valentine. Introduced by Cleveland Seed Company, and said to have originated with a Mr. Hopkins, of New York.

Horse Bean. This is a name sometimes applied to the class of beans known as English Broad Beans and classed by botanists as *Vicia faba.* It is also applied in parts of the South to *Canavalia ensiformis.*

Horticultural Cranberry Pole. (Listed by 13 seedsmen.) A name sometimes applied to London Horticultural Pole.

Horticultural Lima Pole. (Identity not yet fully known.) Type has apparently gone out of cultivation. Introduced in 1893 by D. M. Ferry & Co., and said to have originated with Alexander J. Hodges, of Pepton, Vt., from a cross between Dreer's Pole Lima and Dwarf Horticultural. Such a cross, however, is declared improbable and is generally disbelieved. Its real origin is as yet undecided.

Horticultural Pole. (Listed by 85 seedsmen. Seeds tested: Thorburn, 1902.) Same as London Horticultural Pole. Said to have been introduced into the United States from England about 1825.

Horticultural Wax. (See p. 101.)

Ice Bean. (Not listed by seedsmen.) A name sometimes applied by gardeners to Crystal Wax.

Imperial White-Seeded Wax. (Listed by 1 seedsman. Seeds tested: Maule, 1902; Rogers, 1906.) Same as Jones's Stringless Wax. Applied by William Henry Maule to Jones's Stringless Wax. Should not be confounded with Allan's Imperial Wax.

Improved Black Wax. A name generally applied by seedsmen to Prolific Black Wax, but sometimes also to German Black Wax.

Improved Goddard. (See p. 72.)

Improved Golden Wax. (See p. 101.)

Improved Yellow Eye. (See p. 72.)

Indian Chief Wax Pole. (See p. 130)

Isbell's Earliest. (Listed by 1 seedsman. Seeds tested: Isbell, 1905.) Same as Best of All Bush and consisting largely of the flat-podded type. Introduced in 1904 by S. M. Isbell & Co.

Isbell's Golden Butter Wax. (Listed by 1 seedsman. Seeds tested: Isbell, 1905.) Same as Golden Wax. Introduced in 1905 by S. M. Isbell & Co.

Isbell's Perfect Pole Lima. (Listed by 1 seedsman. Seeds tested: Isbell, 1905.) Same as White Dutch Runner Pole. Introduced in 1905 by S. M. Isbell & Co.

Jack Bean. Not listed by American seedsmen. A name applied in some sections of the South to *Canavalia ensiformis* previously described.

Jackson Wonder Bush Lima. (See p. 44.)

Japanese Asparagus Pole. (Listed by 1 seedsman.) A name applied by Moore & Simon to Yard Long Pole.

Jones's Green Pod. (Listed by 1 seedsman. Seeds tested: Maule, 1906.) Our tests of this variety have not yet been complete enough to positively determine its identity, but it is evidently very similar in appearance to Garden Pride and of same usefulness and value. Introduced in 1906 by William Henry Maule and originated by A. N. Jones, of Leroy, N. Y. Described as a cross between Burpee's Stringless Green Pod and Garden Pride.

Jones's Stringless Wax. (See p. 102.)

July Pole. (Listed by 1 seedsman.) A name applied by Vaughan Seed Company, to White Creaseback Pole.

June Bush Field Bean. (Listed by 1 seedsman.) A name applied by J. Bolgiano & Son to Navy Pea.

Keeney's Refugee Wax. A name sometimes applied to the stringless type of Refugee Wax.

Keeney's Rustless Golden Wax. (See p. 102.)

Kentucky Wonder Pole. (See p. 118.)

Kentucky Wonder Wax Pole. (See p. 131.)

Kidney Wax. (Listed by 10 seedsmen.) An ambiguous name generally used with reference to Wardwell's Kidney Wax, but sometimes also to Davis Wax.

King Horticultural Pole. (Listed by 6 seedsmen. Seeds tested: Emerson, 1905; Thorburn, 1901, 1902.) Same as Worcester Mammoth Pole. Introduced in 1895 by Schlegel & Fottler.

King of Earlies. (Listed by 4 seedsmen. Seeds tested: Tait, 1904, 1905.) Same as Black Valentine. A recent introduction of several eastern seedsmen.

King of Garden Pole Lima. (See p. 48.)

King of the Wax. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904.) Same as Scarlet Flageolet Wax. Introduced in 1899 by Moore & Simon.

King's Improved Butter Bush Lima. (Listed by 1 seedsman. Seeds tested: King, 1904.) Same as Wood's Prolific Bush Lima. A recent introduction of T. J. King & Co.

King's Improved Pole Lima. (Listed by 1 seedsman. Seeds tested: King, 1904.) Same as Wood's Improved Pole Lima. Introduced in 1901 by T. J. King & Co.

Knickerbocker. (See p. 73.)

Kumerle Bush Lima. (Listed by 10 seedsmen. Seeds tested: Ferry, 1902; Johnson & Stokes, 1902.) Same as Dreer's Bush Lima. Originated by J. W. Kumerle, of Newark, N. J. The type was first introduced in 1889 by J. M. Thorburn & Co. as Thorburn's Bush Lima, and later became known as Kumerle Bush Lima and Dreer's Bush Lima. It is now most generally known by the latter name.

Lady Washington Field Bean. (Listed by 1 seedsman. Seeds tested: Braslan, 1905, 1906.) This is a large, late, semirunning field variety similar to Prolific Tree and extensively grown in California. It appears to be later and larger in vine and of larger, flatter seed than Prolific Tree, and possibly more productive. The name seems to have been in use for a long time both in the East and California. Often sold in eastern produce markets as Navy or Pea beans. Dry seeds of the variety are shown on Plate V, 4.

Landreth's Scarlet Wax. (Listed by 1 seedsman. Seeds tested: Landreth, 1897, 1902, 1905.) Same as Scarlet Flageolet Wax. Introduced in 1887 by D. Landreth Seed Company. Originated by A. H. Ansley & Son, of Milo Center, N. Y., by selecting the scarlet-colored seed out of the variety formerly known as Flageolet Wax.

Landreth's Wax Pole. (See p. 131.)

Large White Bush Lima. (Listed by 8 seedsmen. Seeds tested: Ferry, 1902.) Same as Burpee's Bush Lima. Named in 1895 by D. M. Ferry & Co.

Large White Pole Lima. (See p. 49.)

Lazy Wife Pole. (See p. 118.)

Leafless Medium Field Bean. A name sometimes applied to Day's Leafless Medium.

Leopard Wax. (See p. 103.)

Leviathan Pole Lima. (See p. 50.)

Lewis Pole Lima. Although not listed by seedsmen, this is the variety planted so extensively in Southern California as a field Lima bean. It sometimes consists of a mixture of several garden varieties, and the type is not usually very constant or uniform.

Lightning. (See p. 73.)

Lightning Valentine. (Listed by 3 seedsmen. Seeds tested: Buist, 1905.) Same as Red Valentine. Introduced in 1890 by Robert Buist Seed Company as Buist's Early Lightning Valentine.

Lima Wax. (Listed by 3 seedsmen.) A name sometimes applied by seedsmen to Rogers's Lima Wax.

Livingston's Hardy Wax. (See p. 104.)

Livingston's Royal Corn Pole. (Listed by 1 seedsman.) Same as Royal Corn Pole.

Livingston's Yellow Pencil Pod Wax. (Listed by 1 seedsman. Seeds tested: Livingston, 1905, 1906.) Same as stringless type of Refugee Wax. Introduced in 1900 by Livingston Seed Company.

London Horticultural Pole. (See p. 119.)

Longfellow. (See p. 74.)

Long-Podded Dolichos Pole. A name sometimes applied to Yard Long Pole.

Long-Podded Pole Lima. (See p. 50.)

Long Yellow Six Weeks. (See p. 75.)

Low's Champion. (See p. 75.)

McKenzie's Matchless Green Pod. (Listed by 1 seedsman. Seeds tested: McKenzie, 1905.) Same as Burpee's Stringless Green Pod. Introduced in 1902 by A. E. McKenzie & Co.

McKinley Refugee. (Listed by 1 seedsman.) A name sometimes applied to Golden Refugee.

Madagascar Pole. (Listed by 1 seedsman. Seeds tested: Watkins, 1905.) Same as *Dolichos lablab* of botanists and Hyacinth bean of seedsmen. Neither pods nor seeds are edible, and although catalogued by above seedsman with table varieties of beans, the species is purely ornamental and usually recommended by seedsmen merely as a desirable ornamental climber.

Mammoth Bush Lima. (Listed by 1 seedsman. Seeds tested: Glass, 1906.) Same as Burpee's Bush Lima.

Mammoth Horticultural Pole. (Listed by 19 seedsmen. Seeds tested: Ferry, 1900, 1905; Fish, 1904; Lompoc, 1905; McClure, 1904.) Same as Worcester Mammoth Pole. Named a few years after the introduction of that variety in 1895.

Mammoth Red German Wax. Listed only by William Rennie Company and described by them to be same as Giant Wax, more commonly known as Scarlet Flageolet Wax.

Mammoth Stringless Green Pod. A name sometimes applied to Giant Stringless Green Pod.

Marblehead Horticultural Bush. (See p. 76.)

Marrow Pea Field Bean. (Listed by 6 seedsmen. Seeds tested: Ferry, 1902, 1905; Johnson & Stokes, 1897.) Same as Navy Pea.

Maryland White Pole. (Listed by 1 seedsman. Seeds tested: Griffith & Turner, 1902, 1905.) Same as Lazy Wife Pole. Introduced in 1896 by Griffith & Turner.

Matchless Green Pod. (Listed by 1 seedsman. Seeds tested: McKenzie, 1905.) Same as Burpee's Stringless Green Pod. Introduced in 1902 by A. E. McKenzie & Co. as McKenzie's Matchless Green Pod.

Maule's Butter Wax. (See p. 104.)

Maule's Nameless Wax of 1906. (See p. 105.)

May Queen. (Listed by 1 seedsman. Seeds tested: J. Bolgiano, 1905.) Same as Extra Early Refugee. Introduced in 1905 by J. Bolgiano & Son, who write the seed came from Virginia.

May's Champion Pole. (Listed by 1 seedsman. Seeds tested: May, 1905, 1906.) Same as Large White Pole Lima. Introduced by L. L. May & Co., by whom it has been listed for at least twelve years.

Medium Navy Field Bean. A name sometimes applied to Day's Leafless Medium.

Mexican Bush Lima. (Listed by 1 seedsman. Seeds tested: Pierce, 1905.) Same as Barteldes's Bush Lima. A recent introduction of several Colorado seedsmen.

Mexican Pinto Field Bean. (Listed by 1 seedsman. Seeds tested: Pierce, 1906.) A very late, large-growing field bean largely planted in Colorado and California, but unknown in the North, Central, or Eastern States. Probably too late for growing as far north as Michigan and New York.

Mexican Tree Field Bean. (Listed by 4 seedsmen. Seeds tested: Livingston, 1898, Thorburn, 1897.) A name sometimes applied to Prolific Tree. Apparently first listed about twenty-five years ago and known at that time as White Branching Sugar.

Michell's Giant Pole Lima. (Listed by 1 seedsman. Seeds tested: Michell, 1905, 1906.) Department trials were too incomplete for describing this type fully, but it is evidently a large-podded, large-seeded selection of the Salem Mammoth or some other similar large-seeded variety. Introduced in 1905 by Henry F. Michell, who states it to be a selection made by a New Jersey grower.

Midsummer Wax. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Scarlet Flageolet Wax. Introduced in 1896 by John A. Salzer Seed Company.

Miller's Early Golden Stringless Wax. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904, 1905.) Same as Valentine Wax. Introduced in 1904 by Moore & Simon, who write the seed came from Jas. R. Shallcross, Middletown, Del., who obtained the seed from a Mr. Miller.

Miller's Rustproof Wax. (Listed by 1 seedsman. Seeds tested: Mills, 1905.) Same as Currie's Rustproof Wax. Introduced in 1897 by F. B. Mills.

Milliken's Wax. (Listed by 1 seedsman. Seeds tested: Kendall & Whitney, 1902, 1905.) Same as Wardwell's Kidney Wax. Introduced in 1895 by Kendall & Whitney, who state that the seed came from a Mr. Milliken.

Missouri White Cornfield Pole. (Listed by 2 seedsmen. Seeds tested: St. Louis Seed Company, 1905.) Same as White Creaseback Pole. Named in 1898 by Plant Seed Company, who had previously listed it as White Cornfield Pole.

Missouri Wonder Pole. (See p. 120.)

Mohawk. (See p. 77.)

Mohawk Wax. (Listed by 1 seedsman. Seeds tested: Landreth, 1905.) Introduced in 1903 by D. Landreth Seed Company as Landreth's Mammoth-Seeded Golden Wax Mohawk and described as a cross between Mohawk and Scarlet Flageolet Wax. Seeds same as Mohawk and pods resembling a wax-podded Long Yellow Six Weeks. Apparently distinct, but trials as yet too poor for full report.

Monarch Wax. (See p. 105.)

Monstrous-Podded Southern Prolific Pole. (Listed by 1 seedsman. Seeds tested: Landreth, 1905.) Same as Kentucky Wonder Pole. Introduced by D. Landreth Seed Company, by whom it has been listed at least since 1890.

Mont d'Or Wax Pole. (See p. 132.)

Mottled Pole Lima. (See p. 50.)

Mountain Field Bean. (Listed by 5 seedsmen.) A name sometimes applied to Navy Pea and in other sections to White Marrow.

Mugwump Pole. Not listed by American seedsmen, but sometimes applied by gardeners to Worcester Mammoth Pole.

Muzzy's Stringless Green Pod. (Listed by 1 seedsman. Seeds tested: Muzzy, 1906.) Same as Burpee's Stringless Green Pod. Introduced by Muzzy Brothers in 1902.

Navy Pea Field Bean. (See p. 77.)

Ne Plus Ultra. (See p. 78.)

Newington Wonder. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904, 1905.) Name used in this country at least since 1855. As sold at present time the variety is same as Giant Stringless Green Pod, but the type sold under this name about 1880 was very tough, stringy, flat-podded, and very different from above-named samples.

New York Golden Wax. (Listed by 1 seedsman. Seeds tested: Page, 1905.) Same as Improved Golden Wax. A recent introduction of Page Seed Company.

Nichol's Medium Butter Pole Lima. (Listed by 1 seedsman. Seeds tested: St. Louis Seed Company, 1905.) Same as Wood's Improved Pole Lima. Introduced in 1905 by St. Louis Seed Company.

Noll's Ideal Potato Pole Lima. (Listed by 1 seedsman. Seeds tested: Noll, 1905.) Same as Dreer's Pole Lima. Introduced in 1904 by J. F. Noll & Co., who describe it as a selection of Dreer's Pole Lima.

North Star. (Listed by 1 seedsman. Seeds tested: Great Northern, 1905.) Same as Mohawk. A recent introduction of Great Northern Seed Company, who describe it as a selection from Mohawk.

Norwood Giant Stringless. (Listed by 1 seedsman. Seeds tested: J. M. McCullough, 1904.) Same as Giant Stringless Green Pod. Introduced in 1901 by J. M. McCullough's Sons.

Noxall Pole. (Listed by 1 seedsman. Seeds tested: Maule, 1902, 1904, 1905.) Same as White's Prolific Pole. Introduced in 1902 by William Henry Maule, who writes the variety originated in Iowa and was received from a customer.

October Pole. (Listed by 1 seedsman.) A name applied by Springfield Seed Company to Concord Pole and sometimes loosely applied by gardeners to various other types of beans.

Ohio Wax Pole. (Listed by 1 seedsman. Seeds tested: J. M. McCullough, 1904.) Same as Kentucky Wonder Wax Pole. Introduced in 1903 by J. M. McCullough's Sons.

Old Homestead Pole. (Listed by 84 seedsmen. Seeds tested: Burpee, 1901.) Same as Kentucky Wonder Pole. Introduced about sixteen years ago by Peter Henderson & Co., who write the seed was obtained in Westchester County, N. Y.

Oliver Field Bean. (Listed by 1 seedsman. Seeds tested: Vaughan, 1906.) Trial too incomplete to make identification positive, but variety is evidently very similar to White Kidney and possibly a very pure stock of that variety. Introduced in 1906 by Vaughan Seed Company.

One Thousand to One. (Listed by 1 seedsman.) A name often applied to Refugee.

Onondaga Pole. (Listed by 1 seedsman. Seeds tested: Ebeling, 1903.) Trials too incomplete for positive identification, but variety is evidently distinct and valuable. Introduced in 1898 by F. H. Ebeling, who describes it as belonging to the Horticultural class.

Page's Extra Early. (Listed by 1 seedsman. Seeds tested: Page, 1905.) Same as Extra Early Refugee. A recent introduction of Page Seed Company.

Painted Lady Pole. (Listed by 5 seedsmen. Seeds tested: Price, 1903.) An old European sort of the Multiflora class which has been listed by American seedsmen at least since 1855. Test too incomplete for full description, but variety evidently similar to Scarlet Runner, differing principally in being smaller podded and each flower red and white in color. Useful as an ornamental climber, but not as desirable for snaps as Scarlet Runner.

Panmure Extra Early Pole Lima. (Listed by 1 seedsman. Seeds tested: Maule, 1904–1906.) Trials too incomplete for full description, but variety is evidently a fine selection of the Extra Early Jersey or some other large-seeded sort. Valuable for combination of extreme earliness and large pods. Possibly distinct and very valuable. Introduced in 1903 by William Henry Maule and said to have originated with a California seed grower.

Pencil Pod Black Wax. (See p. 106.)

Perfection Wax. (Listed by 22 seedsmen. Seeds tested: Burpee, 1897, 1901, 1902; Keeney, 1904; McKenzie, 1905.) Same as Purple Flageolet Wax. Introduced in 1887 by W. Atlee Burpee & Co. Originated by A. H. Ansley & Son, of Milo Center, N. Y., by separating the darker colored seed from the German variety known at that time as Flageolet Wax.

Perfectly Straight Round Pod. (Listed by 1 seedsman. Seeds tested: Steckler, 1904.) Same as Longfellow. Introduced in 1903 by J. Steckler Seed Company, as Steckler's Perfectly Straight Round Pod.

Pinks Field Bean. (Listed only by Johnson & Musser. Seeds tested: Braslan, 1905 1906.) This is a large, late, semirunning field variety extensively grown in California, especially in San Luis Obispo County and in the Sacramento and San Joaquin valleys. It is of similar habit to the Bayo and Red Mexican varieties, and like them is very late in season and so far has never been listed by Eastern seedsmen nor cultivated in the bean-growing districts of New York and Michigan. The beans are very much liked by the Spanish people, by whom it seems to have been first brought into California. Dry seeds are illustrated on Plate II, 13.

Point Market Prolific Pole. (Listed by 1 seedsman. Seeds tested: J. Bolgiano, 1906.) Same as White Creaseback and consisting wholly of the true early type of that variety. Introduced in 1906 by J. Bolgiano & Son.

Potato Bush Lima. A name sometimes applied to Dreer's Bush Lima, but more often used as a class name to designate the thick-seeded bush Limas.

Potato Pole Lima. A name sometimes applied to Dreer's Pole Lima, but more often used as a class name to designate the thick-seeded pole Limas.

Powell's Prolific Pole. (See p. 120.)

Powell's Yellow Giant Wax Pole. (Listed by 1 seedsman. Seeds tested: Vick, 1905.) Introduced in 1904 by James Vick's Sons and said to have been originated by a Rev. E. P. Powell, of New York State. Trials too incomplete for making a positive identification, but variety is evidently of same type as Golden Cluster Wax, Kentucky, Wonder Wax and Sunshine Wax, and possibly identical with one of these varieties.

Pride of Newton. (Listed by 1 seedsman. Seeds tested: Steckler, 1903, 1905; Thorburn, 1897, 1901, 1902.) Same as Long Yellow Six Weeks. Introduced in 1888 by J. M. Thorburn & Co.

Princess Pole. No longer listed by seedsmen. A name formerly applied to Dutch Case Knife Pole.

Prize Winner Field Bean. (Listed by 2 seedsmen. Seeds tested: Green, 1905; Wills, 1905.) Same as Navy Pea. Introduced in 1901 by the former firm of A. I. Root Seed Company.

Profusion Wax. (Listed by 1 seedsman. Seeds tested: Maule, 1903, 1904.) Same as stringless type of Refugee Wax. Introduced in 1903 by William Henry Maule.

Prolific Black Wax. (See p. 107.)

Prolific Bush Lima. A name sometimes applied to Wood's Prolific Bush Lima.

Prolific Everbearing Rustproof Wax. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1902, 1904.) Same as Davis Wax. Introduced in 1896 by Moore & Simon.

Prolific German Black Wax. (Listed by 16 seedsmen. Seeds tested: Burpee, 1901; Johnson & Stokes, 1897; Ferry, 1899, 1900, 1903.) Same as Prolific Black Wax and of the same origin and introduction.

Prolific Pickler. (Listed by 1 seedsman. Seeds tested: Vick, 1905.) Same as Vick's Prolific Pickler.

Prolific Tree Field Bean. (See p. 78.)

Prosperity Wax Pole. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Kentucky Wonder Wax Pole. Introduced in 1905 by John A. Salzer Seed Company.

Purple Flageolet Wax. (See p. 107.)

Quarter Century Bush Lima. (Listed by 9 seedsmen. Seeds tested: Burpee, 1905.) Same as Wonder Bush Lima. Introduced in 1901 by W. Atlee Burpee & Co. as Burpee's Quarter Century Bush Lima. Said to have been originated by J. B. Kelsey, Santa Paula, Cal., from a selection of the most compact early plants of Burpee's Bush Lima.

Rapp's Favorite. This name was first used in 1900 by Johnson & Musser, but has now gone out of use, the name having been changed in 1904 to French Mohawk, by which the type is at present known.

Red Cranberry Bush. (Listed by 2 seedsmen. Seeds tested: Breck, 1905.) Same as Low's Champion, but probably a different type from that sold under this name previous to 1885. A variety of this name known also as Rob Roy was listed by American seedsmen as early as 1828.

Red Cranberry Pole. (See p. 121.)

Red Flageolet Wax. (Listed by 8 seedsmen. Seeds tested: Thorburn, 1897, 1901, 1902.) Same as Scarlet Flageolet Wax.

Red German Wax. (Listed by 1 seedsman. Seeds tested: Rennie, 1905.) Composed of Scarlet Flageolet Wax and Violet Flageolet Wax. Apparently introduced by William Rennie, by whom it has been listed at least since 1894.

Red Kidney Field Bean. (See p. 79.)

Red Mexican Field Bean. (Not listed in seed catalogues. Seeds tested: Braslan, 1905, 1906.) This is a large, late, semirunning field variety grown extensively in California, Colorado, and other parts of the West. It is of similar habit to Bayo and Pinks and, like them, much more productive than eastern field varieties, but possibly too late in season to be grown in New York or Michigan. It is thought to be of Spanish or Mexican origin and seems to have been first cultivated in this country in California. Seeds of the variety are illustrated on Plate I, 21.

Red-Podded Dwarf Horticultural. (Listed by 1 seedsman. Seeds tested: Gregory, 1905.) Same as Boston Favorite. Name apparently first used about 1888 by James J. H. Gregory & Son, but should not be confounded with either Dwarf Horticultural or Ruby Horticultural Bush of present day.

Red Valentine. (See p. 79.)

Refugee. (See p. 80.)

Refugee Wax. (See p. 108.)

Rennie's Stringless Wax. (Listed by 1 seedsman. Seeds tested: Rennie, 1905.) Sample comprised Scarlet Flageolet Wax and Violet Flageolet Wax. Introduced in 1898 by William Rennie.

Rhode Island Butter Pole. (Listed by 1 seedsman. Seeds tested: Huntington & Page, 1905.) Same as White's Prolific Pole. Listed by seedsmen in this country at least since 1867. Name almost out of use and type at present is best known as White's Prolific Pole.

Rogers's Lima Wax. (See p. 109.)

Rose. (Listed by 1 seedsman.) A name applied by Henry Philipps Seed Company to Canadian Wonder, but apparently first used by James J. H. Gregory & Sons in 1880.

Round Pod Kidney Wax. (See p. 109.)

Round Yellow Six Weeks. (See p. 81.)

Royal Corn Pole. (See p. 121.)

Royal Dwarf Kidney Field Bean. (Listed by 31 seedsmen. Seeds tested: Ferry, 1900, 1905; Keeney, 1904.) Same as White Kidney. Cultivated in this country at least since 1857.

Ruby Horticultural Bush. (See p. 81.)

Rustproof Golden Wax. (Listed by 26 seedsmen. Seeds tested: Buckbee, 1902.) Same as Improved Golden Wax. Introduced about 1888.

Saba Pole. (No longer listed by seedsmen.) A name formerly applied to Small White Lima.

Saddleback Wax. (Listed by 17 seedsmen. Seeds tested: Burpee, 1902; Ferry, 1900; Keeney, 1906; Rogers, 1904.) Introduced in 1890 by W. Atlee Burpee & Co. as Burpee's Saddleback Wax and originated by N. B. Keeney & Son, of Le Roy, N. Y. Variety is very similar to and of practically the same usefulness as German Black Wax. Some seed sold under this name is apparently the same as German Black Wax. Further trials are necessary before stating its exact identity and value.

St. Louis Seed Company's Improved Bush Lima. (Listed by 1 seedsman. Seeds tested: St. Louis Seed Company, 1904.) Same as Wood's Prolific Bush Lima. Introduced in 1904 by St. Louis Seed Company.

Salem Mammoth Pole Lima. (See p. 51.)

Salzer's Bush Lima. (Listed by 1 seedsman. Seeds tested: Salzer, 1904.) Same as Dreer's Bush Lima. Named in 1903 by John A. Salzer Seed Company.

Salzer's Earliest Wax. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Allan's Imperial Wax. Introduced about 1890 by John A. Salzer Seed Company.

Salzer's Giant Stringless Wax. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Pencil Pod Black Wax. Introduced in 1901 by John A. Salzer Seed Company.

Salzer's Prosperity Wax Pole. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Kentucky Wonder Wax Pole. Introduced in 1905 by John A. Salzer Seed Company.

Salzer's Round-Podded Wax. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as German Black Wax. Introduced in 1897 by John A. Salzer Seed Company.

Salzer's Tree Field Bean. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Navy Pea. Listed by John A. Salzer Seed Company at least since 1894.

Salzer's White Wonder Field Bean. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Day's Leafless Medium. Apparently named by John A. Salzer Seed Company about 1892.

Scarlet Flageolet Wax. (See p. 110.)

Scarlet Runner Pole. (See p. 40.)

Schwill's Monstrous Pole Lima. (Listed by 1 seedsman. Seeds tested: Schwill, 1905, 1906.) Same as King of Garden Pole Lima. Introduced in 1904 by Otto Schwill & Co.

Schwill's Quick Crop. (Listed by 1 seedsman. Seeds tested: Schwill, 1905.) Same as Earliest Market. Introduced in 1905 by Otto Schwill & Co.

Schwill's Royal Corn Pole. (Listed by 1 seedsman.) Apparently the same as Livingston's Royal Corn Pole, described on page 121 as Royal Corn.

Schwill's Wonderful Wax Pole. (Listed by 1 seedsman. Seeds tested: Schwill, 1905.) Same as Kentucky Wonder Wax Pole. Introduced in 1904 by Otto Schwill & Co.

Scotia Pole. (See p. 122.)

Seibert's Pole Lima. (See p. 51.)

Sewee Pole Lima. A name formerly applied to Small White Pole Lima.

Shaker's Pole. (Listed by 1 seedsman. Seeds tested: Gordinier, 1906.) Same as the smaller-seeded stock of Worcester Mammoth Pole. Introduced in 1906 by W. H. Gordinier. So named because largely cultivated by the Shakers of New York State.

Shipper's Favorite. (Listed by 1 seedsman. Seeds tested: Buist, 1902, 1905.) Same as Best of All Bush and consisting largely of the flat-podded type. Introduced by the Robert Buist Company about 1888.

Shotwell's Pole Lima. (Listed by 3 seedsmen. Seeds tested: Johnson & Stokes, 1897, 1902, 1904, 1906.) Same as Dreer's Pole Lima. Introduced in 1896 by Johnson & Stokes and originated by the late Jacob R. Shotwell, of Rahway, N. J.

Sieva Bush Lima. (Listed by 5 seedsmen. Seeds tested: Ferry, 1902.) Same as Henderson's Bush Lima. Name first came into use about 1896.

Sieva Pole Lima. (Listed by 36 seedsmen. Seeds tested: Rice, 1906.) Same as Small White Pole Lima. Name has been in common use at least since 1800.

Silver Refugee. (Listed by 1 seedsman. Seeds tested: Keeney, 1904, 1905.) Same as Golden Refugee. Name apparently in use only among canners and bean growers.

Silver Wax. (Listed by 4 seedsmen. Seeds tested: Holmes, 1905; Maule, 1902, 1905.) Same as Crystal Wax. Introduced in 1900 by Holmes Seed Company as Holmes's Improved Silver Wax.

Simmers's Early Giant Wax. (Listed by 1 seedsman. Seeds tested: Simmers, 1905.) Sample comprising Scarlet Flageolet and Violet Flageolet Wax. Described by J. A. Simmers Seed Company as having originated in Germany and introduced by their seed house in 1897.

Sion House Forcing. (Listed by 1 seedsman. Seeds tested: Michell, 1905.) Same as Best of All Bush and consisting wholly of the round-podded type. A well-known European sort listed by American seedsmen at various times since about 1880. This sample was much more even than those of Best of All Bush.

Skillman's Pole Lima. (No longer listed by seedsmen. Seeds tested: Johnson & Musser, 1905, 1906.) Apparently same as Seibert's Pole Lima. Introduced in 1905 by Johnson & Musser, but apparently never listed except by this firm and not by them after 1905. Said to have been originated in 1900 by John Skillman of Palms, Cal.

Small Carolina Pole Lima. A name sometimes applied to Small White Pole Lima.

Small Horse Bean. (Listed by 1 seedsman.) Described by Thorburn as a variety of Horse bean known to botanists as Vicia faba.

Small White Bush Lima. A name sometimes applied to Henderson's Bush Lima.

Small White Pole Lima. (See p. 52.)

Snowflake Field Bean. (See p. 82.)

Southern Creaseback Pole. (Listed by 6 seedsmen. Seeds tested: Thorburn, 1897, 1905.) Same as White Creaseback Pole. Named some time after the introduction of White Creaseback in 1881.

Southern Prolific Pole. (See p. 122.)

Southern Willow-Leaved Sewee Pole Lima. A name sometimes applied to Willow-Leaved Pole Lima.

Speckled Beauty Pole Lima. (Listed by 1 seedsman.) Apparently first catalogued in 1906 by Otto Schwill & Co. The description given by them states that the variety is the same as Calico Pole Lima, and indicates that it is similar to or identical with Florida Butter Pole Lima.

Speckled Cranberry Bush. (Listed by 2 seedsmen.) A name sometimes applied to Ruby Horticultural Bush.

Speckled Cranberry Pole. (Listed by 48 seedsmen. Seeds tested: Ferry, 1898, 1900, 1903; Fish, 1903–1905; Rawson, 1901; Thorburn, 1897.) Same as London Horticultural Pole. Name has been in common use since about 1855.

Speckled Cut Short Pole. (See p. 123.)

Speckled Wax. (See p. 111.)

Steckler's Calico Bush Lima. (Listed by 1 seedsman. Seeds tested: Steckler, 1906.) Same as Jackson Wonder Bush Lima. Introduced in 1906 by J. Steckler Seed Company.

Steckler's Perfectly Straight Round Pod. (Listed by 1 seedsman. Seeds tested: Steckler, 1904.) Same as Perfectly Straight Round Pod, more generally known as Longfellow. Introduced in 1903 by J. Steckler Seed Company.

Stokes's Evergreen Pole Lima. (Listed by 1 seedsman. Seeds tested: Johnson & Stokes, 1905, 1906.) Trial too incomplete to describe type fully, but pod evidently of same class as Salem Mammoth, and possibly a selection of that variety. Apparently a different type of pod from Evergreen Pole Lima of William Henry Maule. Introduced about 1892 by Johnson & Stokes, who state the variety to be valuable and distinct because of seeds holding their green color at all stages, even the dry seeds remaining green when cooked.

Sunshine Bush Wax. (Listed by 1 seedsman. Seeds tested: Bolgiano, 1905.) Same as Golden Eyed Wax. Apparently a recent introduction of J. Bolgiano & Son.

Sunshine Wax Pole. (See p. 132.)

Sutton's Dwarf Forcing. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1906.) Trial too poor to make a full description of the type, but evidently a very distinct sort, peculiar for very small size of plant, exceedingly compact habit, and numerous fruit spurs projecting high above foliage. Pods more like Ne Plus Ultra than any other on trial, differing principally in being darker green in color, smaller and narrower in shape of pod, and shorter in pod point. First listed in this country in 1906 by Moore & Simon, and apparently introduced from England.

Sutton's Dwarf Sugar. (Listed by 1 seedsman. Seeds tested: Schlegel & Fottler, 1905.) Same as Best of All Bush, and consisting wholly of the round-podded type. Introduced from England, and first listed in this country by Schlegel & Fottler in 1905. Much more even and purer than present stocks of Best of All.

Sutton's Perfection. (Listed by 1 seedsman. Seeds tested: Schlegel & Fottler, 1903.) Same as Longfellow. An English sort first listed in this country by Schlegel & Fottler in 1903.

Sword Long Pod Horse Bean. (Listed by 4 seedsmen.) A variety of Horse bean known to botanists as *Vicia faba*.

Tait's White Wax. (Listed by 1 seedsman. Seeds tested: J. Bolgiano, 1905.) Same as Davis Wax. Introduced about 1898 by Geo. Tait & Sons.

Tall German Black Wax Pole. A name often applied to Black Wax Pole.

Tall July Runner Pole. (Listed by 1 seedsman. Seeds tested: Thorburn, 1901, 1902, 1905.) Same as White Creaseback Pole, and composed wholly of the true, round-podded type. Introduced from Germany in 1900 by J. M. Thorburn & Co.

Tall Sioux Pole. (Listed by 2 seedsmen. Seeds tested: Field, 1904; Sioux, 1905.) Same as Concord Pole. Introduced about 1898 by Sioux City Seed Company.

Tampico Field Bean. No longer listed by American seedsmen. A name formerly applied to Black Turtle Soup.

Taylor's Green Pod. (See p. 82.)

Tennessee Green Pod Bush. (See p. 83.)

Tennessee White Corn Hill Pole. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1905.) Same as Dutch Case Knife Pole. Introduced in 1897 by Moore & Simon, who state the seeds came from Tennessee

Tennessee Wonder Pole. (See p. 124.)

Texas Prolific Pole. (Listed by 4 seedsmen. Seeds tested: Hastings, 1905.) Same as Kentucky Wonder Pole. Origin of name is obscure. Possibly known locally for many years, but apparently not recognized in seedsmen's lists until quite recently.

Thorburn's Bush Lima. (Listed by 10 seedsmen. Seeds tested: Thorburn, 1901, 1904, 1905.) Same as Dreer's Bush Lima. Introduced in 1889 by J. M. Thorburn & Co. Originated by J. W. Kumerle of Newark, N. J. Type now generally known as Dreer's Bush Lima.

Thorburn's Prolific Market. (See p. 83.)

Thorburn's Refugee Wax. (Listed by 1 seedsman. Seeds tested: Thorburn, 1901, 1902.) As now sold, this variety is same as stringless type of Refugee Wax, but is said to have been distinct when first introduced in 1890 by J. M. Thorburn & Co. Said to have been derived from Extra Early Refugee.

Tom Thumb. (No longer listed by American seedsmen. Seeds tested: Landreth, 1905.) Very similar to and possibly identical with Wonder of France. Introduced in 1903 by D. Landreth Seed Company, as Landreth's Tom Thumb, but apparently never listed except in 1903 and 1904 by above seedsmen.

Triumph of Frames. (See p. 84.)

Trucker's Delight Pole Lima. (Listed by 1 seedsman. Seeds tested: Holmes, 1902, 1904, 1906.) Very similar to and possibly same as Seibert's Pole Lima. Introduced in 1902 by Holmes Seed Company.

Tucker's Prolific Bush Lima. (Listed by 1 seedsman. Seeds tested: Texas, 1904, 1905.) Same as Wood's Prolific Bush Lima. Introduced in 1903 by several American seedsmen. Said to have originated with George Tucker, Old Church, Va.

Turtle Soup Field Bean. A name sometimes applied to Black Turtle Soup.

Union White Valentine. (No longer listed by seedsmen. Seeds tested: Johnson & Stokes, 1897.) Same as White Valentine. Name has been in use since about 1890.

Valentine Wax. (See p. 111.)

Veitch's Forcing. (See p. 84.)

Ventura Wonder Wax. (Listed by 3 seedsmen. Seeds tested: Johnson & Musser, 1905.) Same as Davis Wax. Introduced in 1900 by Johnson & Musser.

Vick's Prolific Pickler. (See p. 85.)

Vienna Forcing. (See p. 85.)

Vineless Marrow Field Bean. (See p. 86.)

Violet Flageolet Wax. (Listed by 10 seedsmen.) A name sometimes applied to Purple Flageolet Wax.

Virginia Cornfield Pole. (See p. 124.)

Walter's Prolific Pole Lima. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904, 1906.) Same as Dreer's Pole Lima. Introduced in 1901 by Moore & Simon, who write the variety originated with Henry Walter, of Rancocas Creek, N. J.

Wardwell's Kidney Wax. (See p. 112.)

Warren Bush. (See p. 86.)

Warwick. (See p. 87.)

White Cherry Pole. (Listed by 1 seedsman. Seeds tested: Griffith & Turner, 1905.) Same as Lazy Wife Pole. Name used by above-named seedsmen at least since 1890 and probably by others long before that time.

White Cornfield Pole. (Listed by 1 seedsman. Seeds tested: Schisler-Corneli, 1905.) Same as White Creaseback Pole. Name apparently first used by above-named seedsmen.

White Cranberry Bush. Name used as early as 1830, but now out of use among seedsmen, or at least not now to be found in seed catalogues.

White Cranberry Pole. A name now sometimes applied to Lazy Wife Pole; but as used about 1830 it seems to have designated a sort smaller seeded than Lazy Wife Pole.

White Creaseback Pole. (See p. 125.)

White Dutch Runner Pole. (See p. 41.)

White Kidney Field Bean. (See p. 87.)

White Kidney Wax. (Listed by 4 seedsmen.) A very ambiguous name, but generatlly used with reference to Davis Wax.

White Marrow Field Bean. (See p. 88.)

White Mexican Field Bean. (Listed by 1 seedsman. Seeds tested: Hastings, 1905.) Same as Navy Pea. Name apparently first used by seedsmen about 1885.

White Sickle Pole. (See p. 126.)

White Valentine. (See p. 88.)

White Wax. (Listed by 34 seedsmen.) The old bean formerly cultivated in this country as White Wax and German White Wax was one of the first used wax-podded bush varieties, but the old type of this name has apparently gone out of use. The type now sold under this name is generally Davis Wax, which is a very different variety from the true type of thirty years ago, and quite different from Burpee's Stringless White Wax of present day.

White Wonder Bush Field Bean. (Listed by 6 seedsmen.) A name applied in the West to a variety of field bean.

White Wonder Pole. This name is sometimes used by California growers for White Sickle Pole, but has never been included in seedsmen's lists.

White's Prolific Pole. (See p. 126.)

Wilkie's Perfection Prize Pole Lima. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904–1906.) Very similar to and possibly identical with Ford's Mammoth Pole Lima. Introduced in 1892 by Moore & Simon, who state that the variety originated with Thomas Wilkie, a Philadelphia market gardener.

Willet's Bush Lima. (Listed by 1 seedsman. Seeds tested: Willet, 1905.) Same as Burpee's Bush Lima. Introduced in 1905 by N. L. Willet Drug Company.

Willing's Pride Pole. (Listed by 1 seedsman. Seeds tested: Salzer, 1905.) Same as Southern Prolific Pole and consisting wholly of the long flat-podded type. Apparently introduced by the John A. Salzer Seed Company, by whom it has been listed since 1894.

Willow-Leaved Bush Lima. (See p. 44.)

Willow-Leaved Pole Lima. (See p. 52.)

Wisconsin Tree Field Bean. (Listed by 1 seedsman. Seeds tested: Moore & Simon, 1904, 1905.) Same as White Marrowfat. Introduced in 1893 by J. A. Everitt Seed Company.

Wonder Bush Lima. (See p. 45.)

Wonder of France. (See p. 89.)

Wood's Bacon Bean. (No longer listed by American seedsmen. Seeds tested: Wood, 1905.) A variety of English Broad or Horse beans known to botanists as Vicia faba. Introduced in 1897 by T. W. Wood & Sons.

Wood's Earliest Hardiest. (No longer listed by American seedsmen. Seeds tested: Wood, 1903.) Introduced in 1893 by T. W. Wood & Sons. Same type of bean as Earliest Market and possibly identical with it or Emperor William.

Wood's Earliest Red Valentine. (Listed by 1 seedsman. Seeds tested: Wood, 1903.) Same as Red Valentine. Introduced in 1895 by T. W. Wood & Sons.

Wood's Improved Pole Lima. (See p. 53.)

Wood's Prolific Bush Lima. (See p. 45.)

Worcester Mammoth Pole. (See p. 127.)

Wren's Egg Pole. (Listed by 16 seedsmen. Seeds tested: Burpee, 1901; May, 1897.) Same as London Horticultural Pole. Name used in this country since about 1865 to designate London Horticultural.

Yankee Winter. (See p. 89.)

Yard Long Pole. (See p. 38.)

Yellow Cranberry. (See p. 90.)

Yellow Eye Field Bean. (Listed by 3 seedsmen. Seeds tested: Haskell, 1905.) A very old field variety listed by American seedsmen at least since 1874 and formerly grown more extensively than at present. Department trials were too incomplete to afford a basis for description, but enough development was made to show that the variety is distinct and of about the same general usefulness as Improved Yellow Eye, which it resembles more than any other, differing principally in narrower, flatter seed, with smaller area of yellow around eye or of about the same color and shape of seed as Golden-Eyed Wax (Pl. III, 1); while pods are narrower and vine less spreading in habit than Improved Yellow Eye.

York Wax. (Listed by 1 seedsman.) Same as Golden Wax. One of the first cultivated wax varieties. First listed by James J. H. Gregory & Son about 1870.

Yosemite Wax. (See p. 112.)

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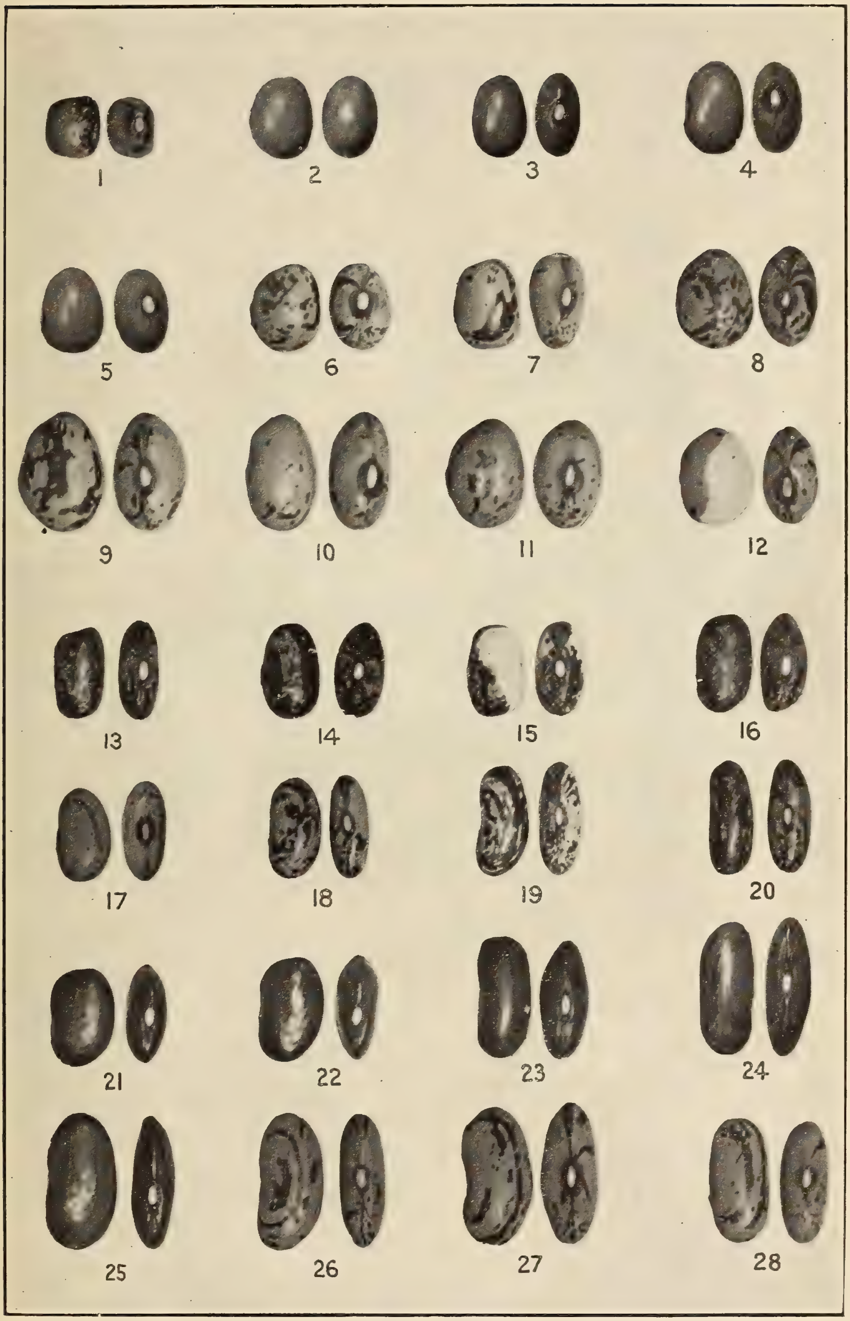
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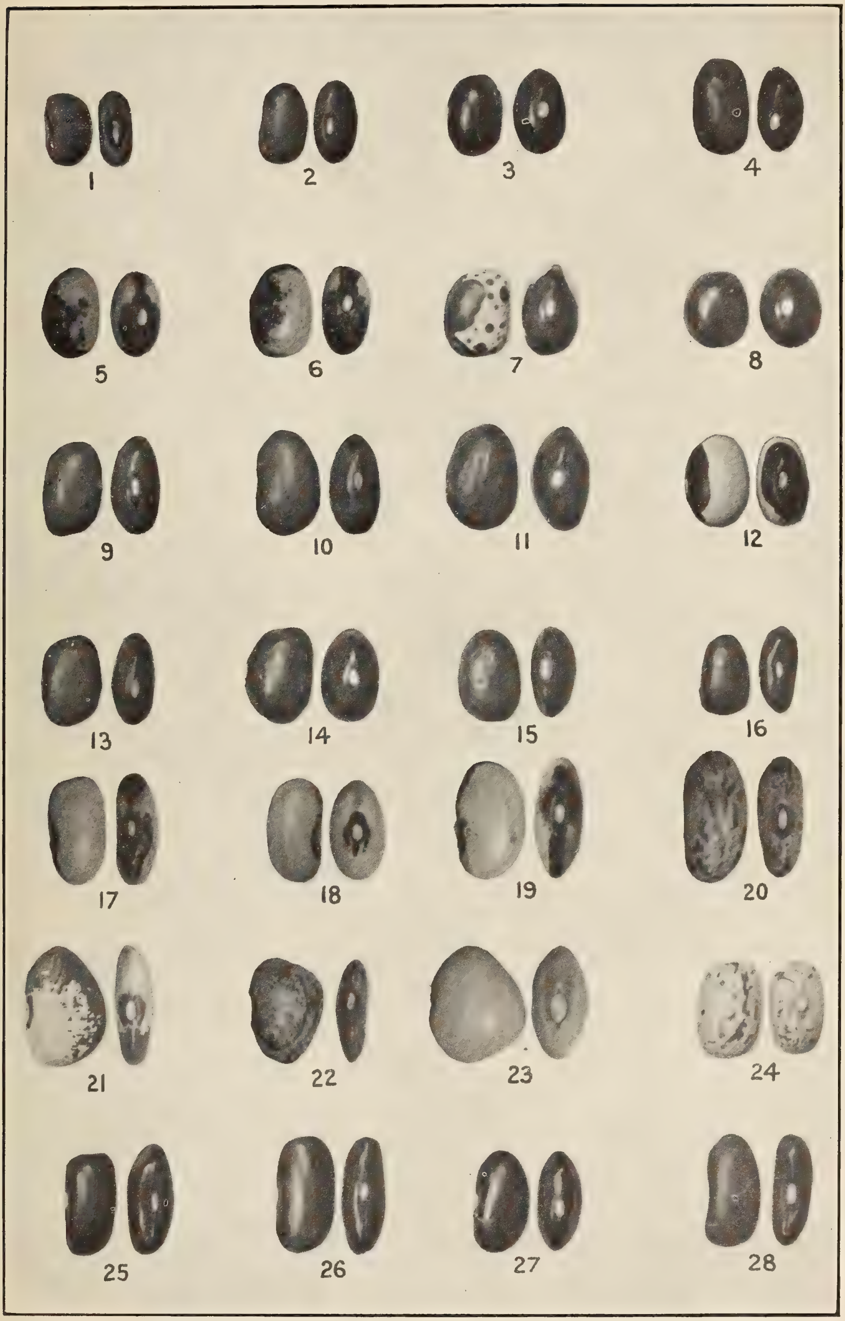
Side and Ventral Views of Ripe Seeds.

(Natural size.)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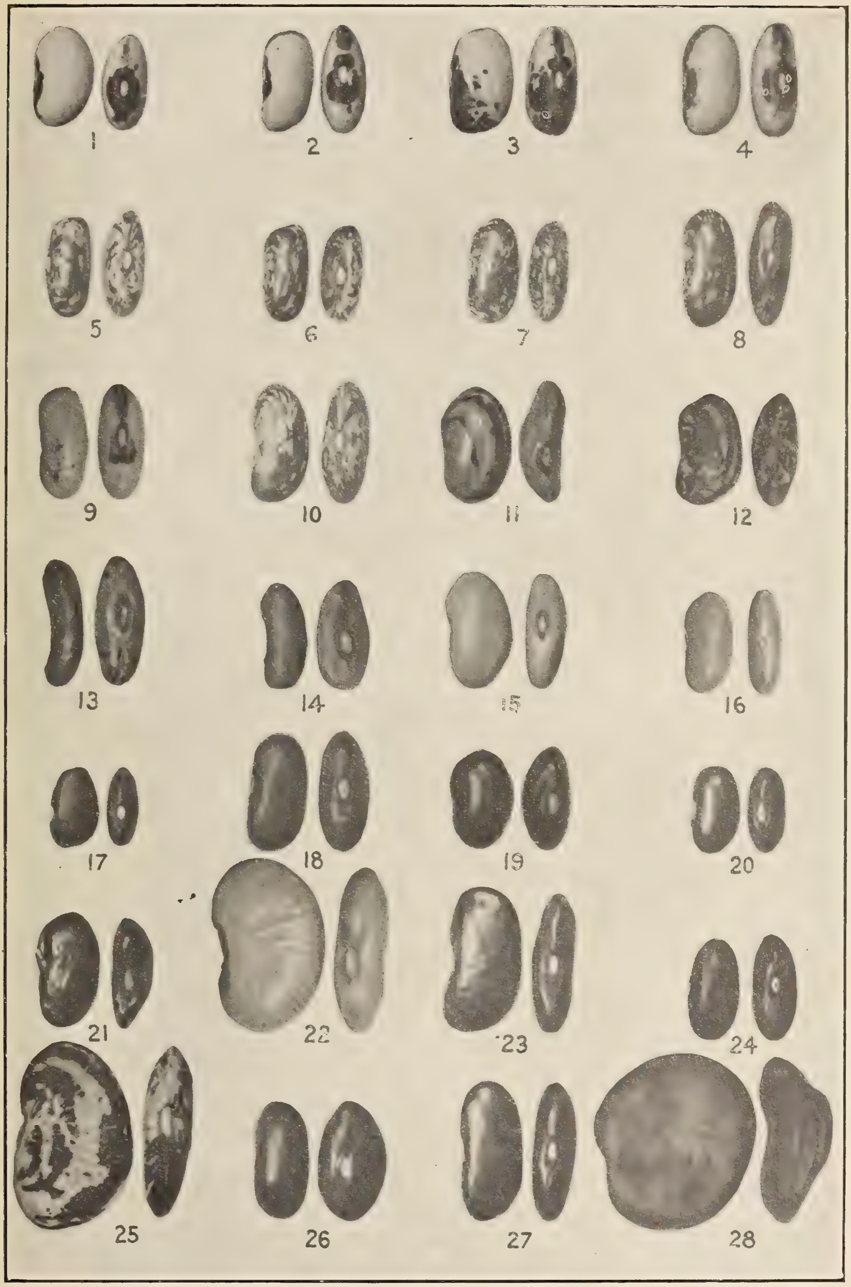
SIDE AND VENTRAL VIEWS OF RIPE SEEDS.

(Natural size.)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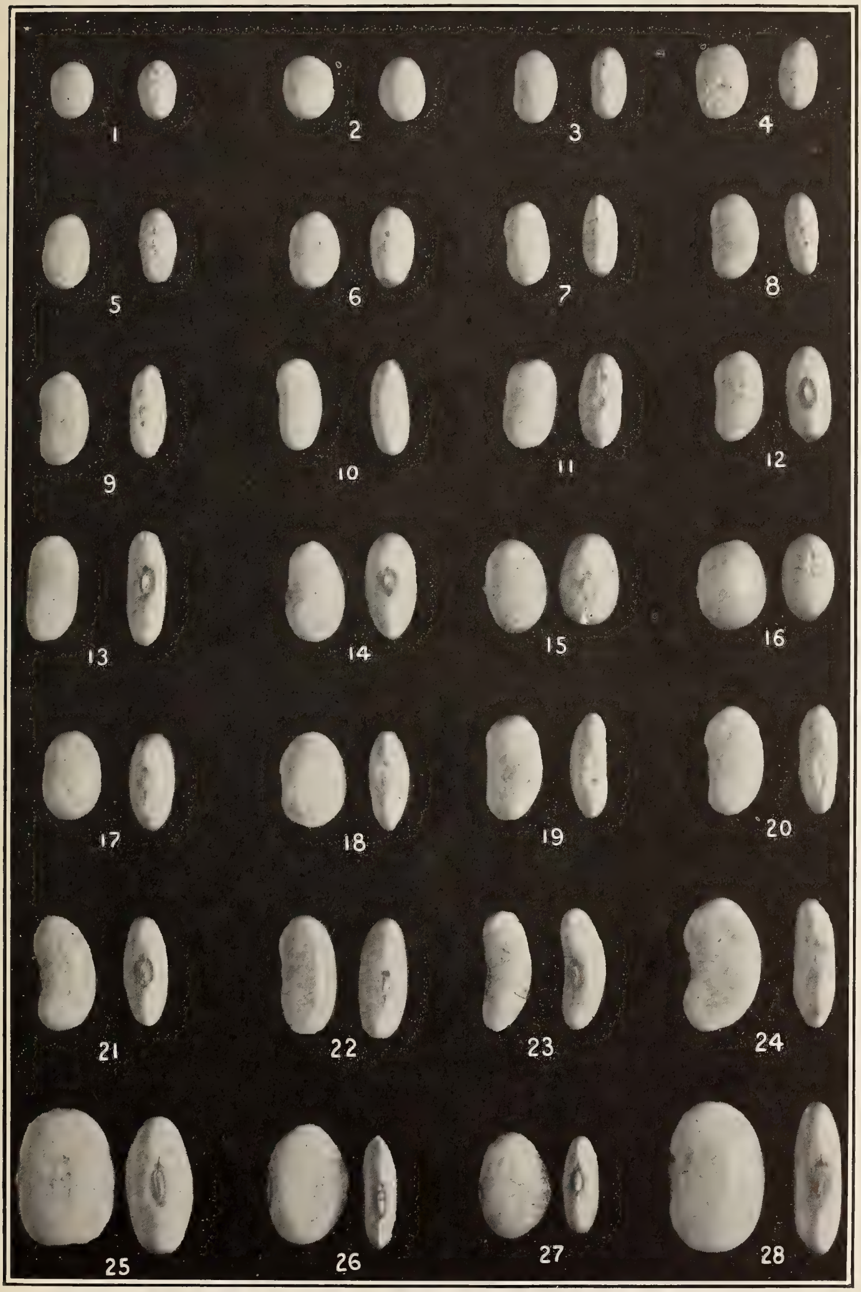
SIDE AND VENTRAL VIEWS OF RIPE SEEDS.

(Natural size.)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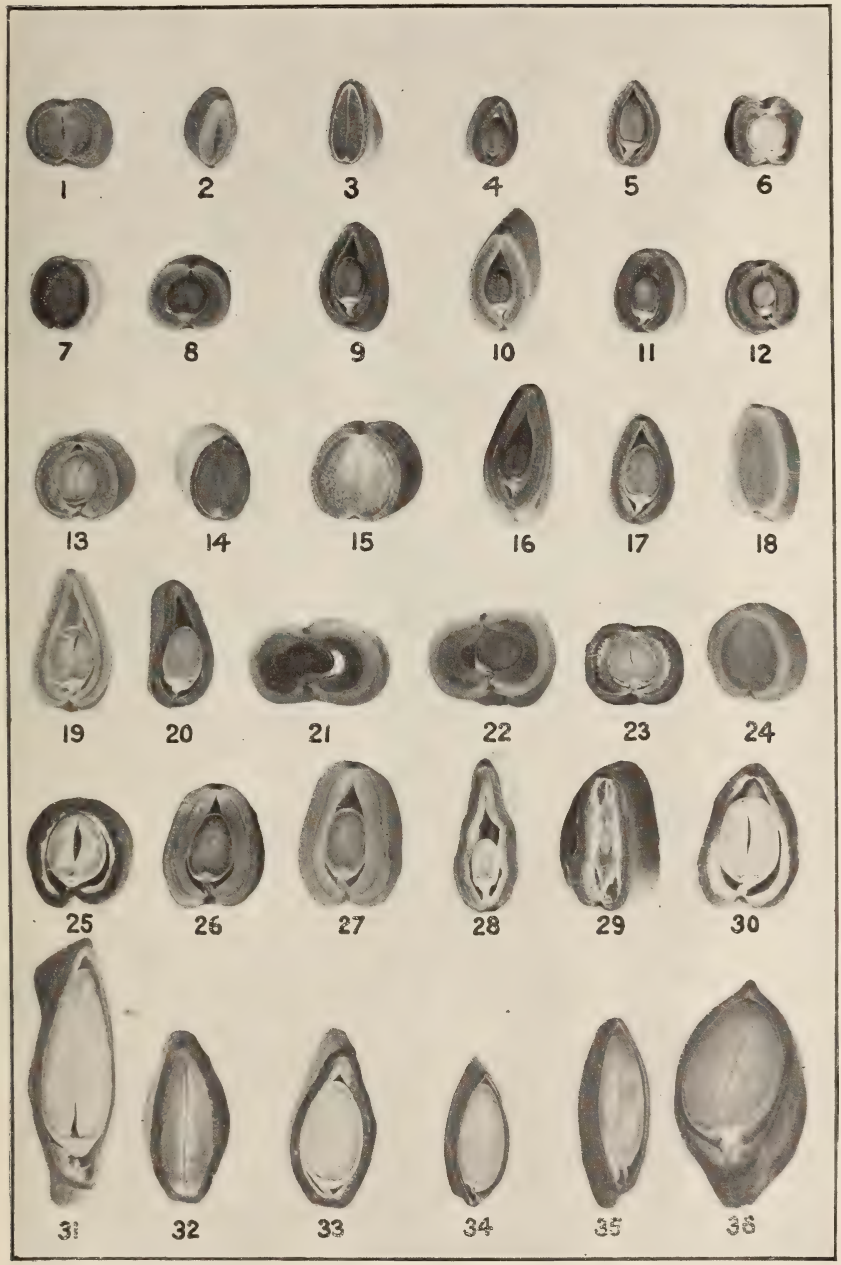
SIDE AND VENTRAL VIEWS OF RIPE WHITE SEEDS.

(Natural size.)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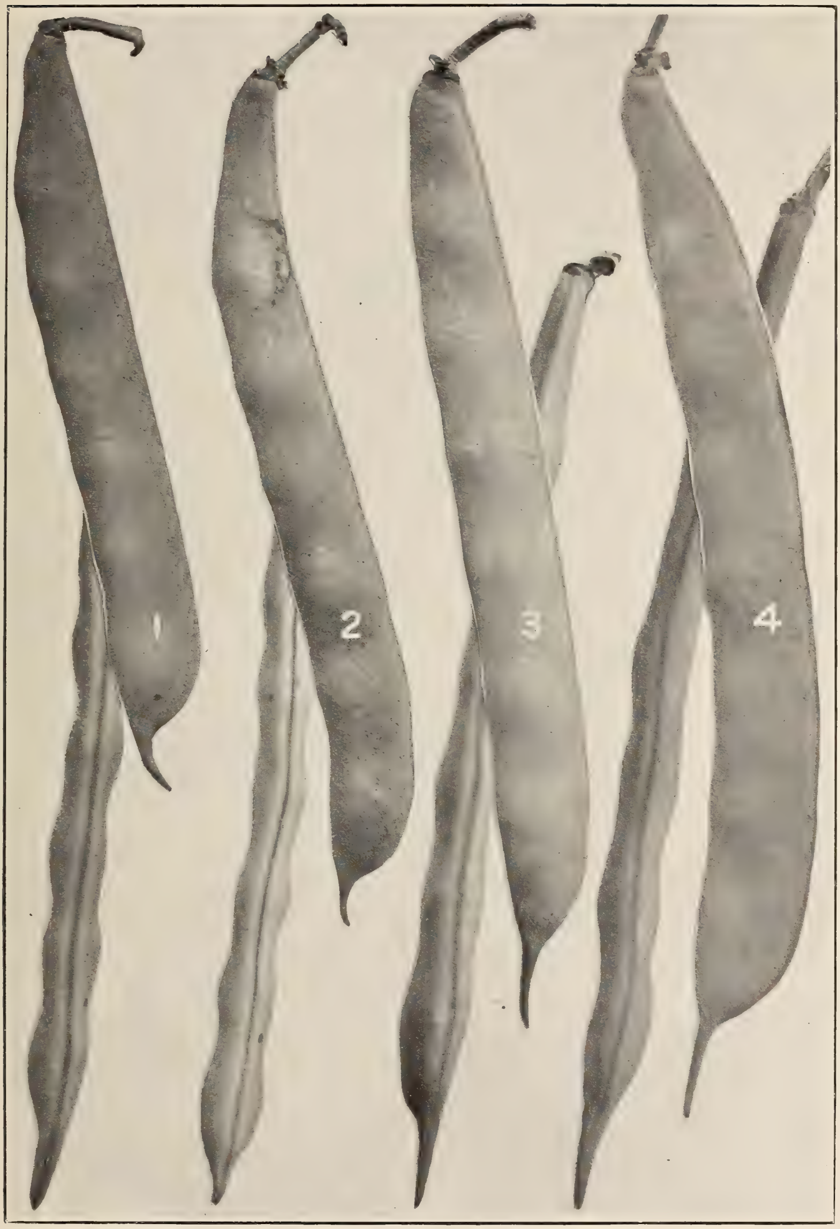
CROSS SECTIONS OF SNAP AND GREEN SHELL PODS.

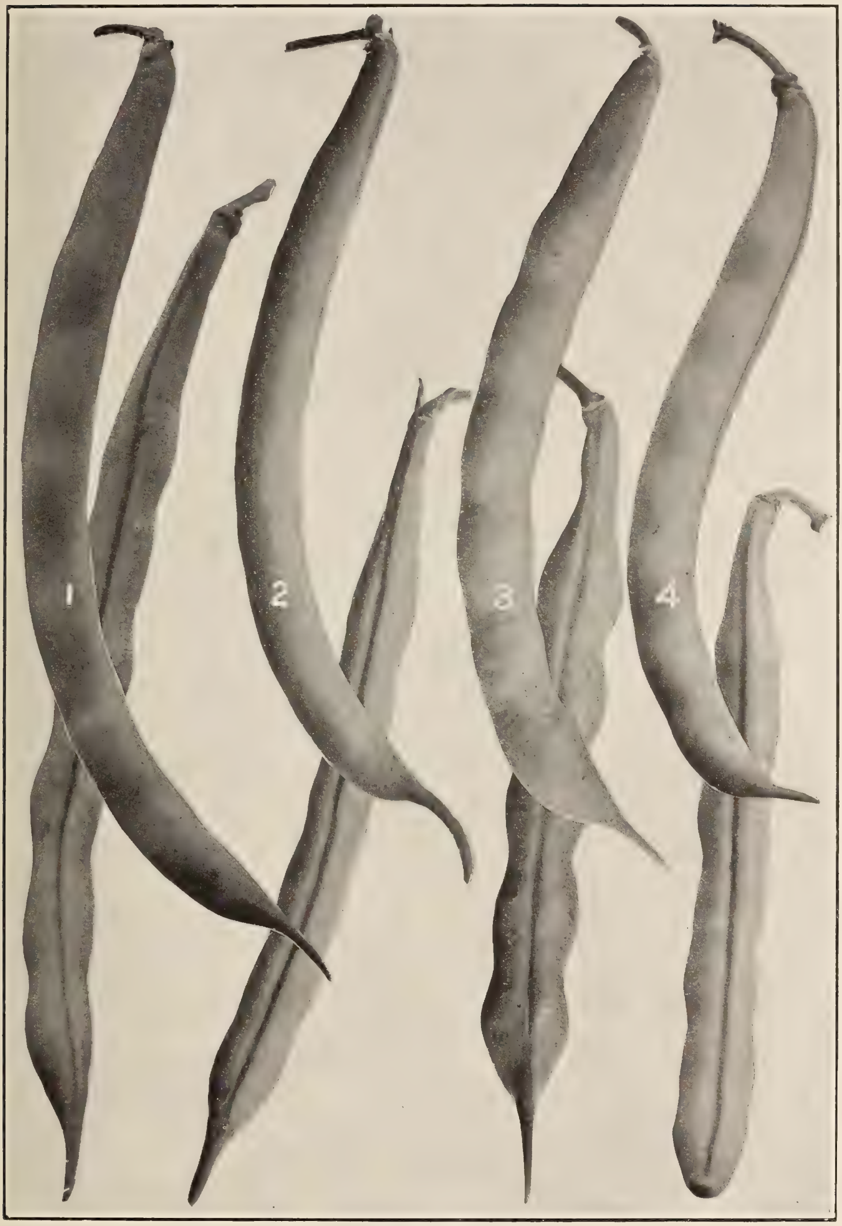
(Natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Improved Golden Wax. 2.—Golden Wax. 3.—Horticultural Wax. 4.—Allan's Imperial Wax.

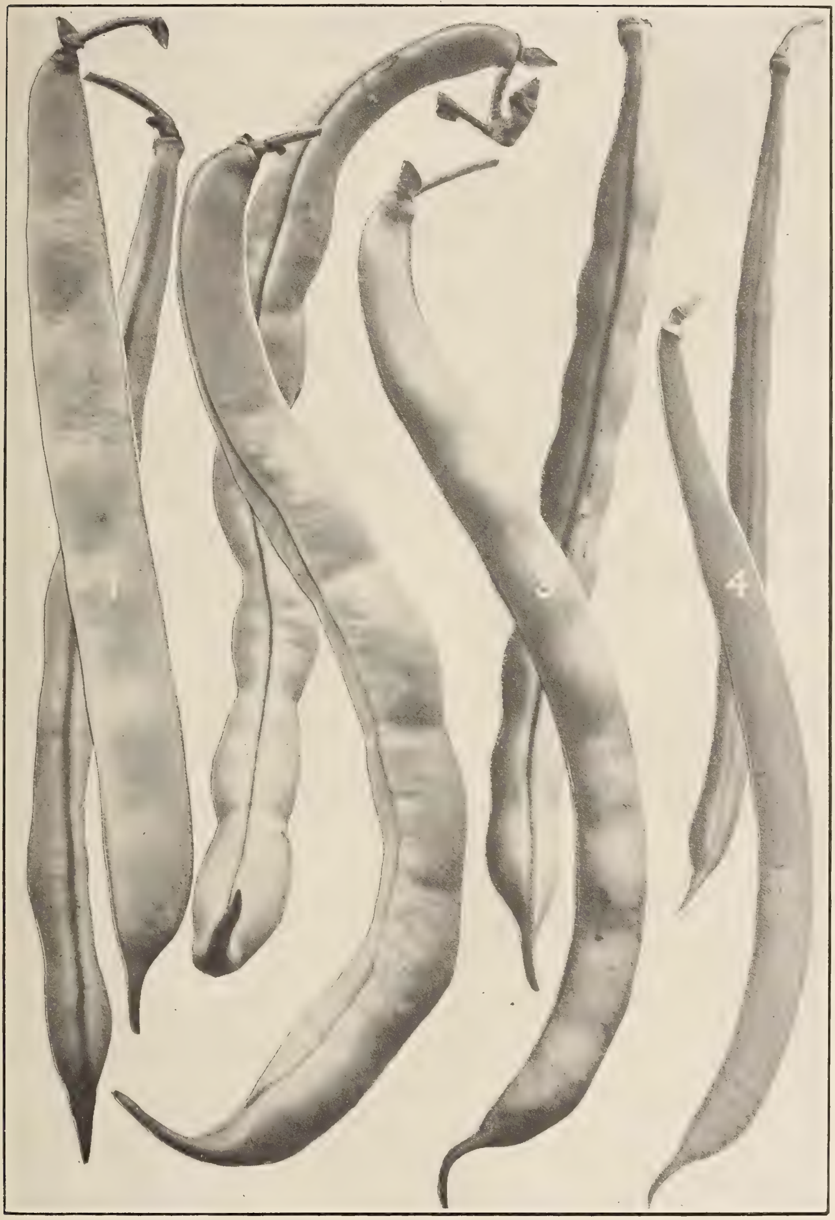
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Bismarck Black Wax. 2.—Extra Early Refugee. 3.—Red Valentine. 4.—Prolific Black Wax.

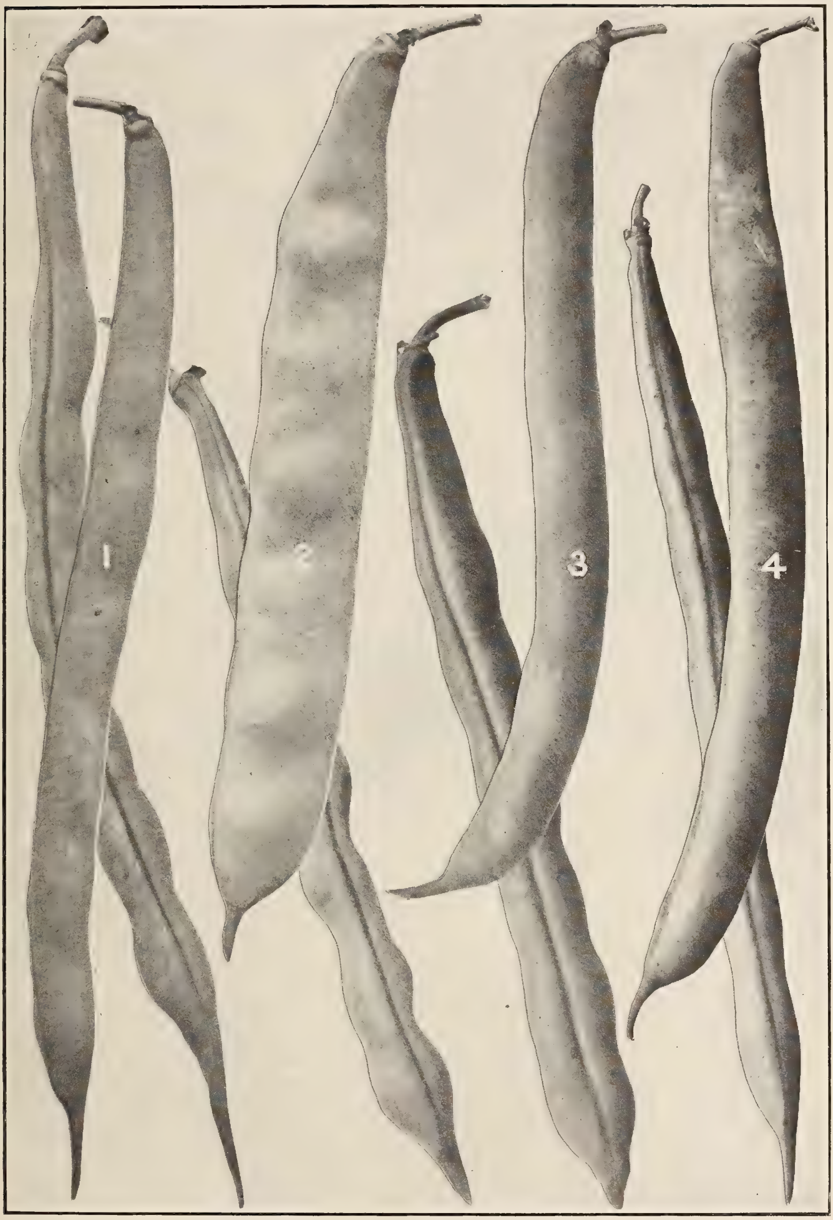
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Currie's Rustproof Wax. 2.—Yosemite Wax. 3.—Pencil Pod Black Wax. 4.—Triumph of Frames.

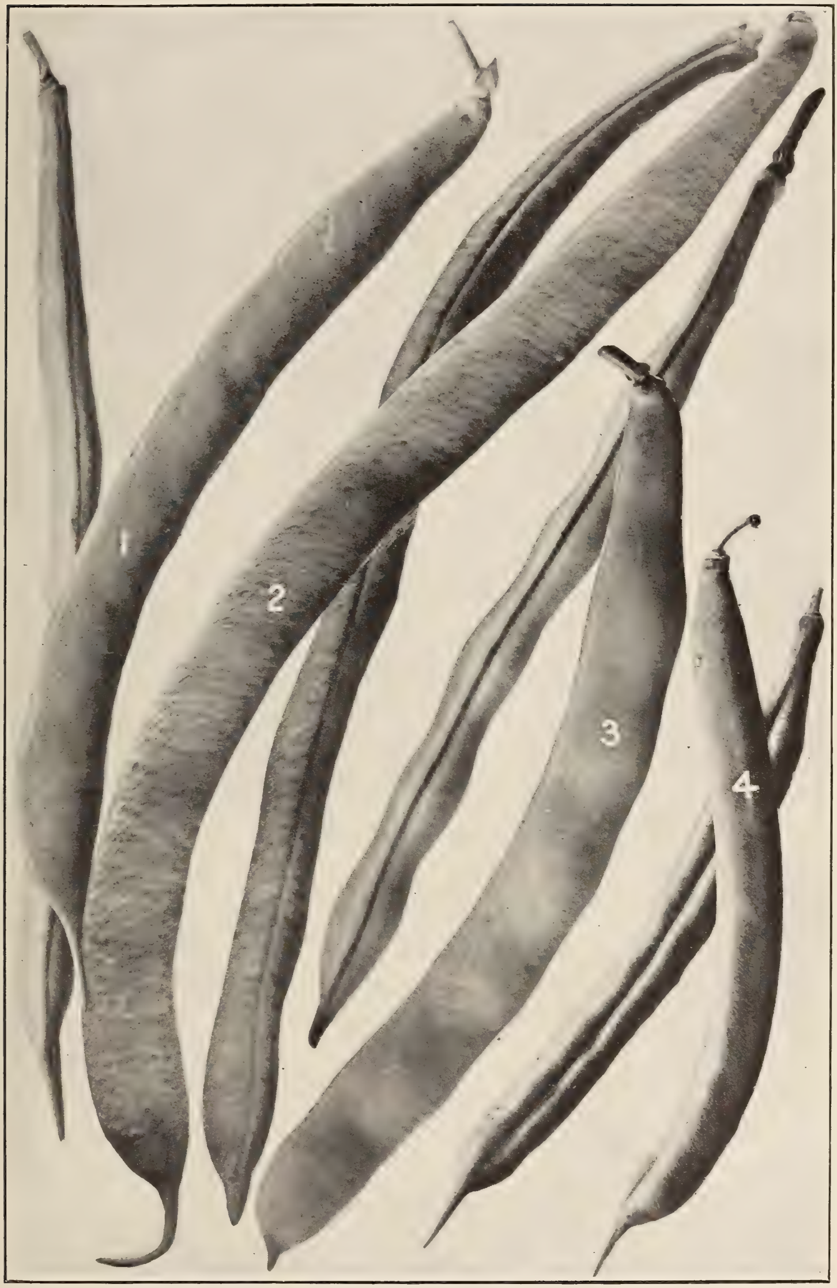
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Longfellow. 2.—Warren Bush. 3.—Burpee's Stringless Green Pod. 4.—Black Valentine.

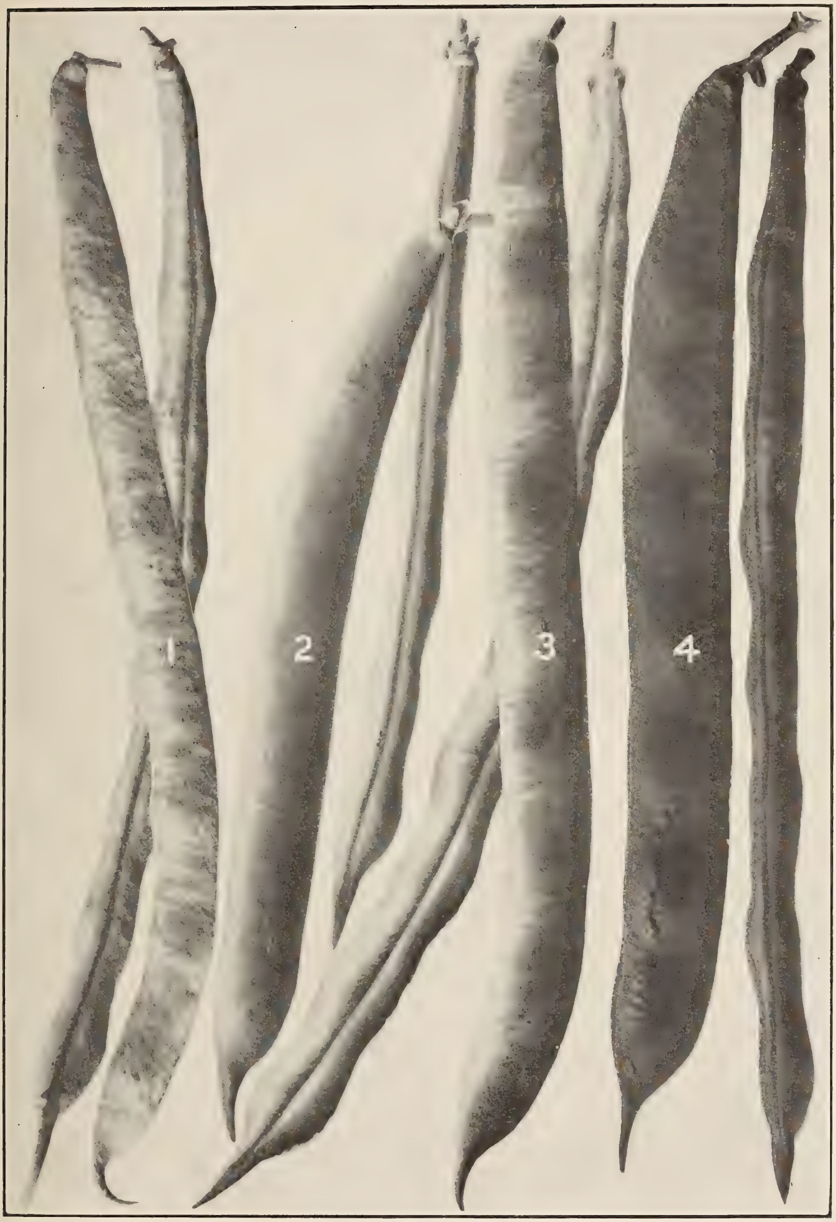
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Long Yellow Six Weeks. 2.—Canadian Wonder. 3.—Wardwell's Kidney Wax. 4.—Yankee Winter Field.

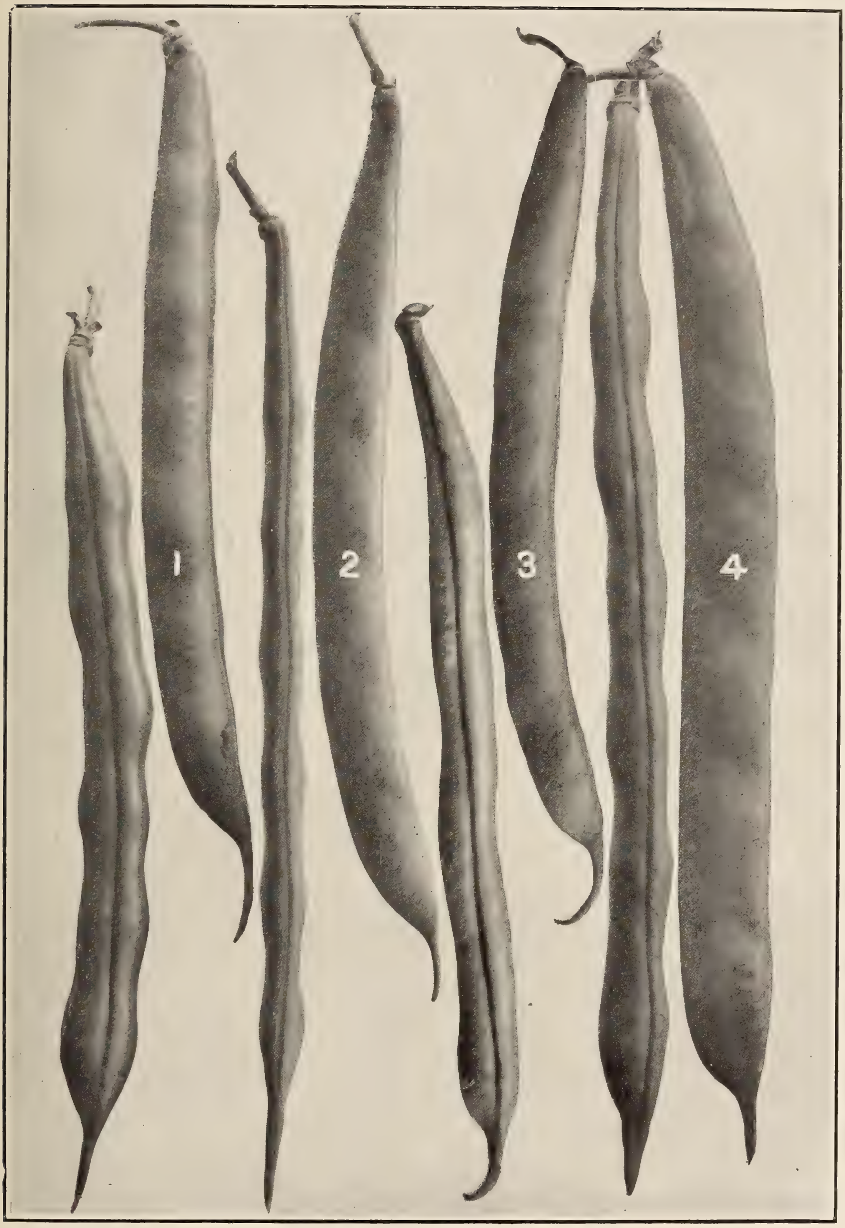
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Thorburn's Prolific Market. 2.—China Red Eye. 3.—Best of All (late type). 4.—Blue Pod Butter.

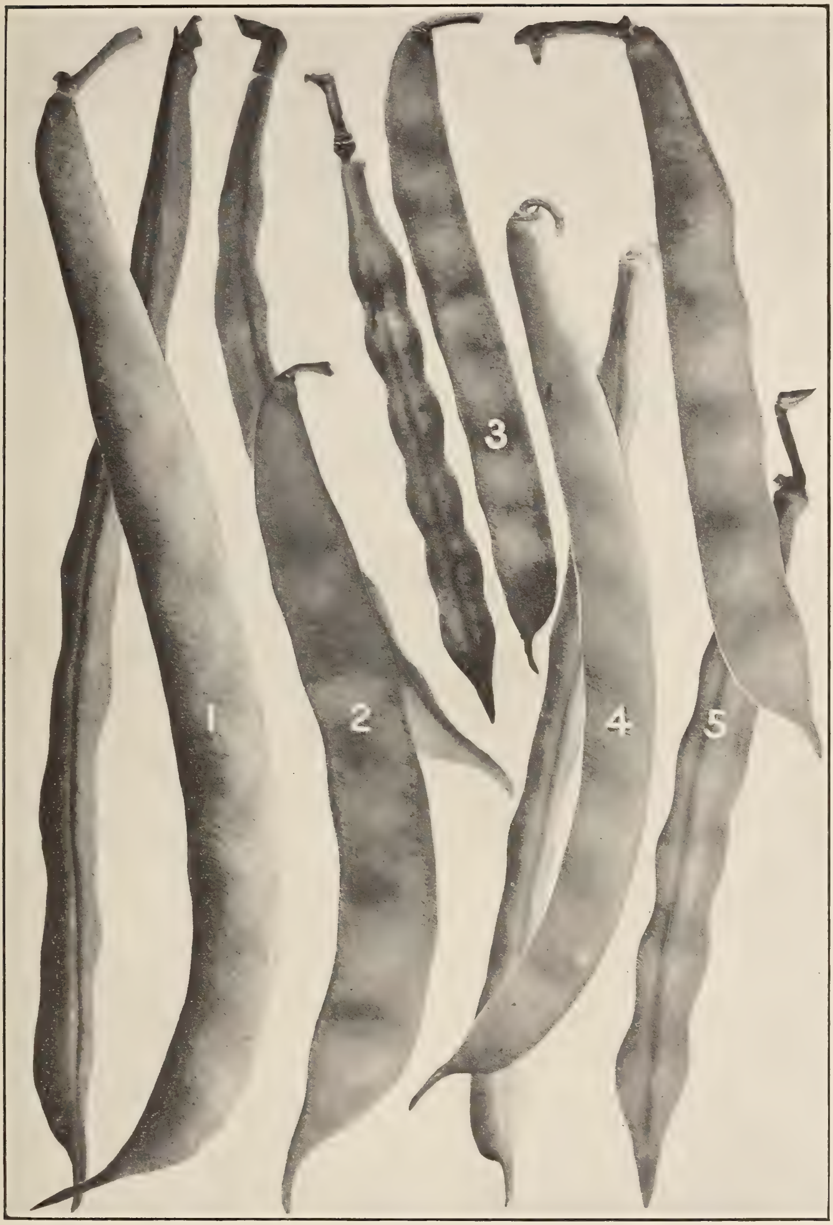
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS).

1.—Byer's Bush. 2.—Vienna Forcing. 3.—Refugee. 4.—Mohawk.

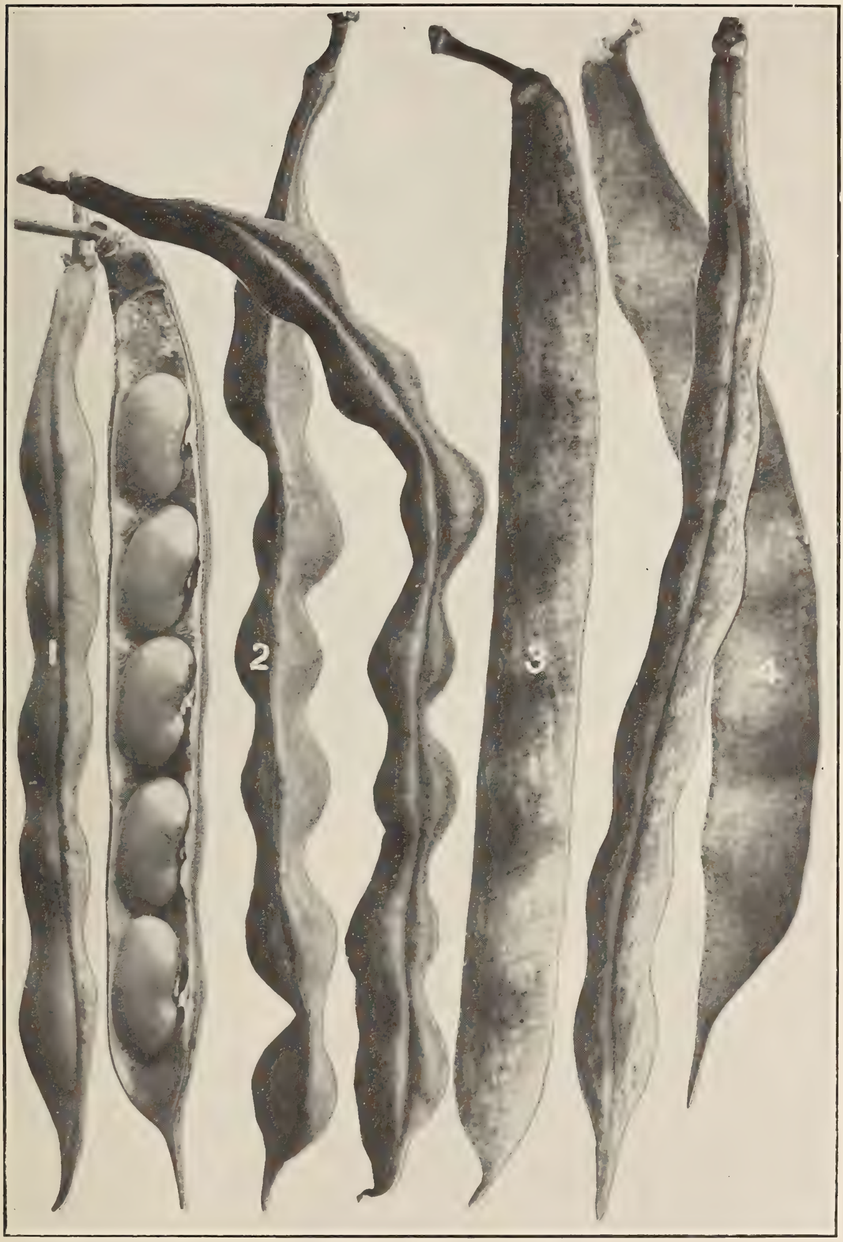
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (SNAP PODS AND GREEN SHELL PODS).

1.—Bountiful. 2—Lightning. 3.—Navy Pea. 4.—Black Turtle Soup. 5.—Round Yellow Six Weeks.

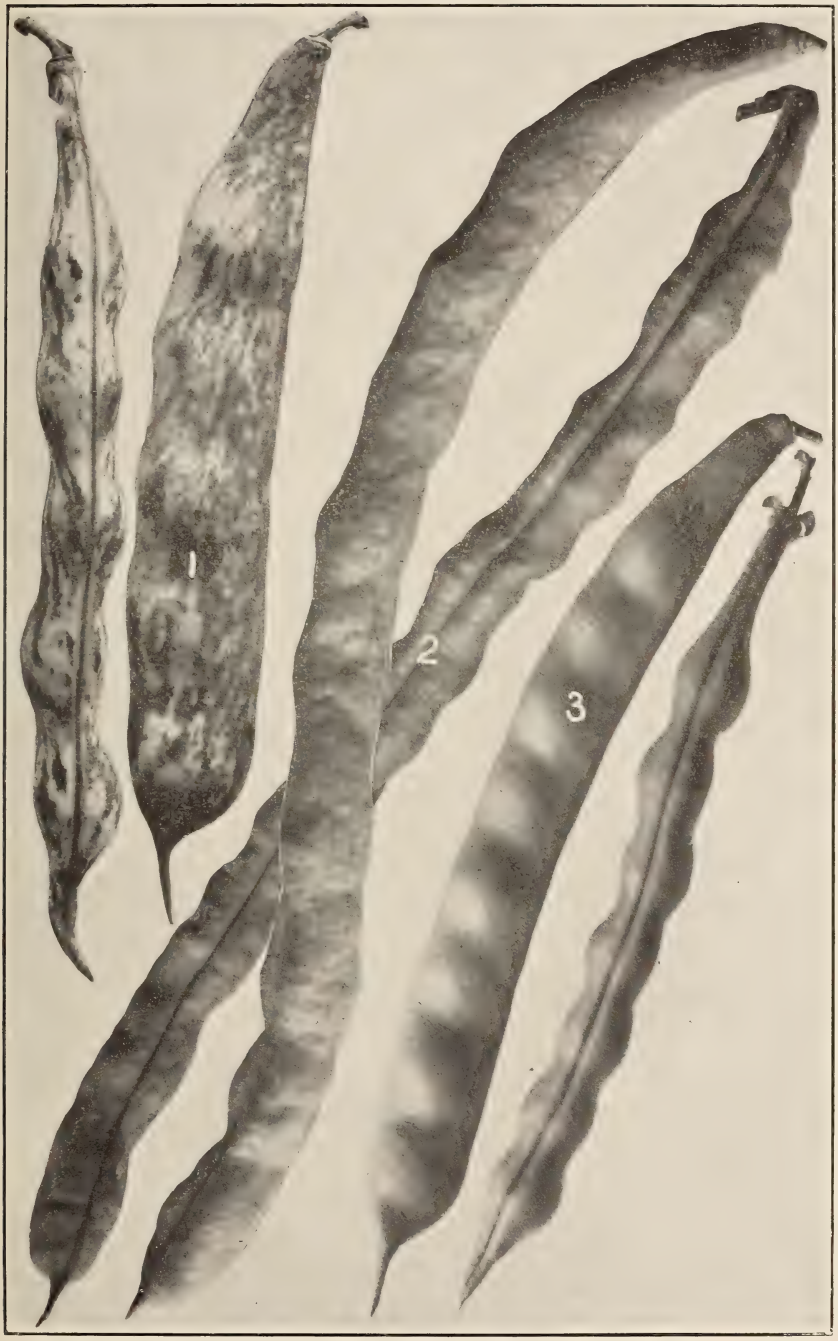
($\frac{7}{8}$ natural size.)



BUSH VARIETIES (GREEN SHELL PODS).

1.—Red Kidney Field. 2.—Tennessee Green Pod. 3.—Improved Goddard. 4.—Boston Favorite.

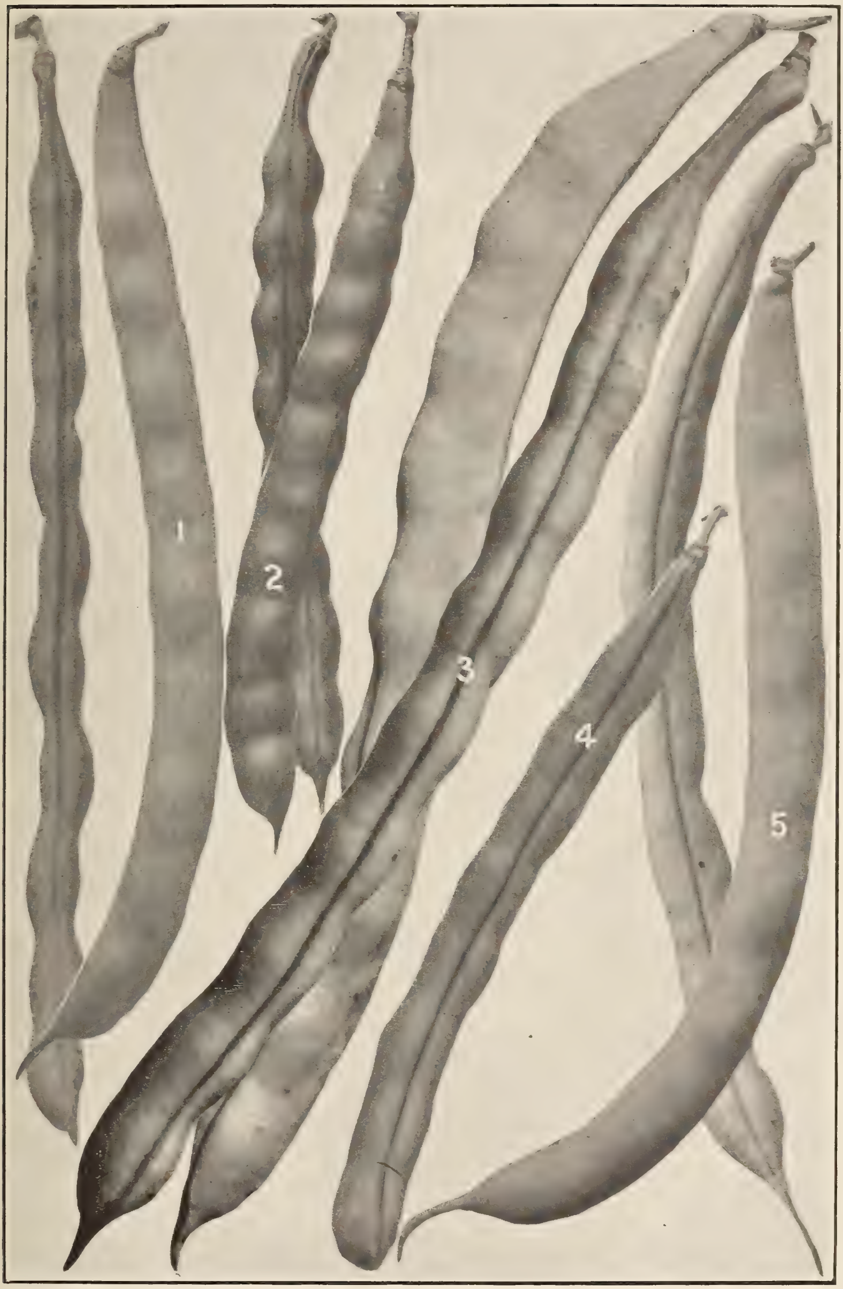
($\frac{7}{8}$ natural size.)



POLE VARIETIES (GREEN SHELL PODS).

1.—Extra Early Horticultural Pole. 2.—Kentucky Wonder Pole. 3.—Lazy Wife Pole.

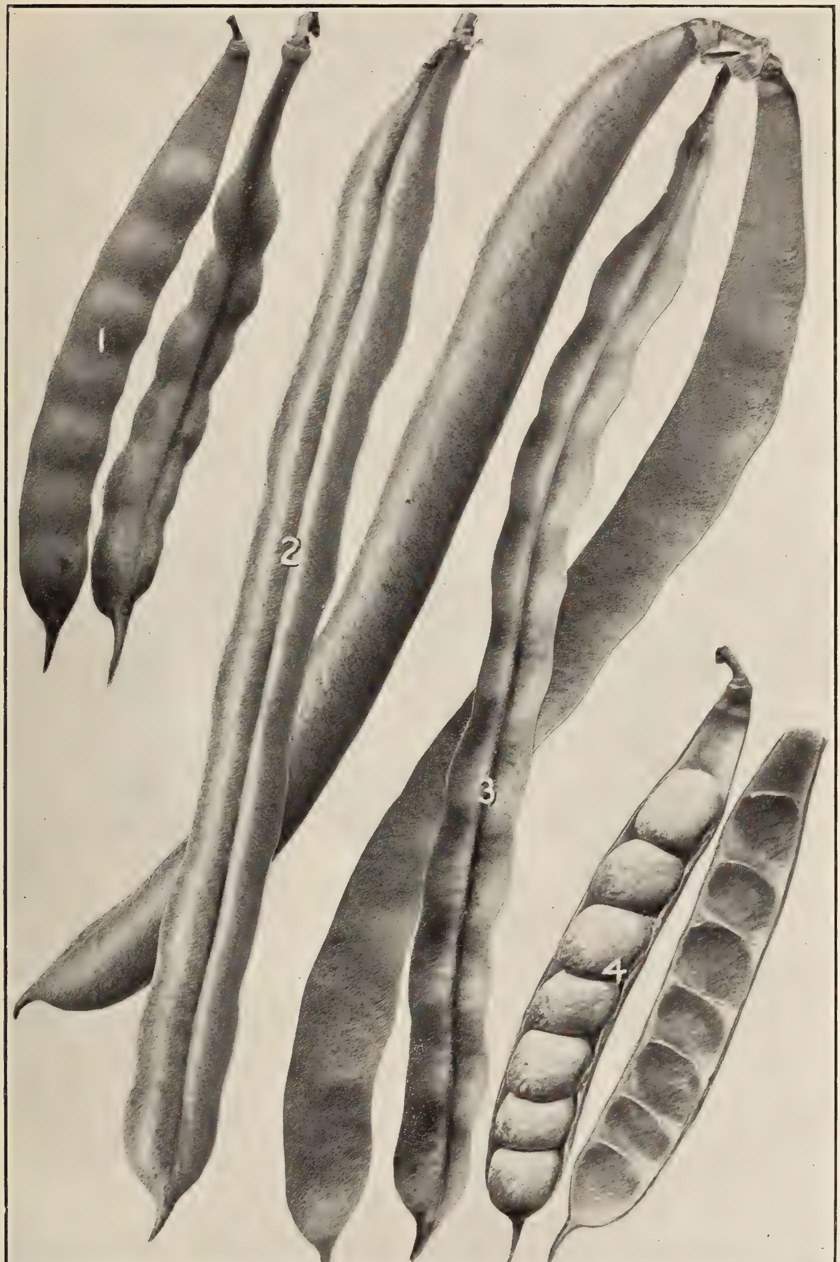
($\frac{7}{8}$ natural size.)



POLE VARIETIES (GREEN SHELL PODS AND SNAP PODS).

1, 2, and 4.—Types of Southern Prolific Pole. 3.—Kentucky Wonder Wax Pole. 5.—Golden Champion Wax Pole.

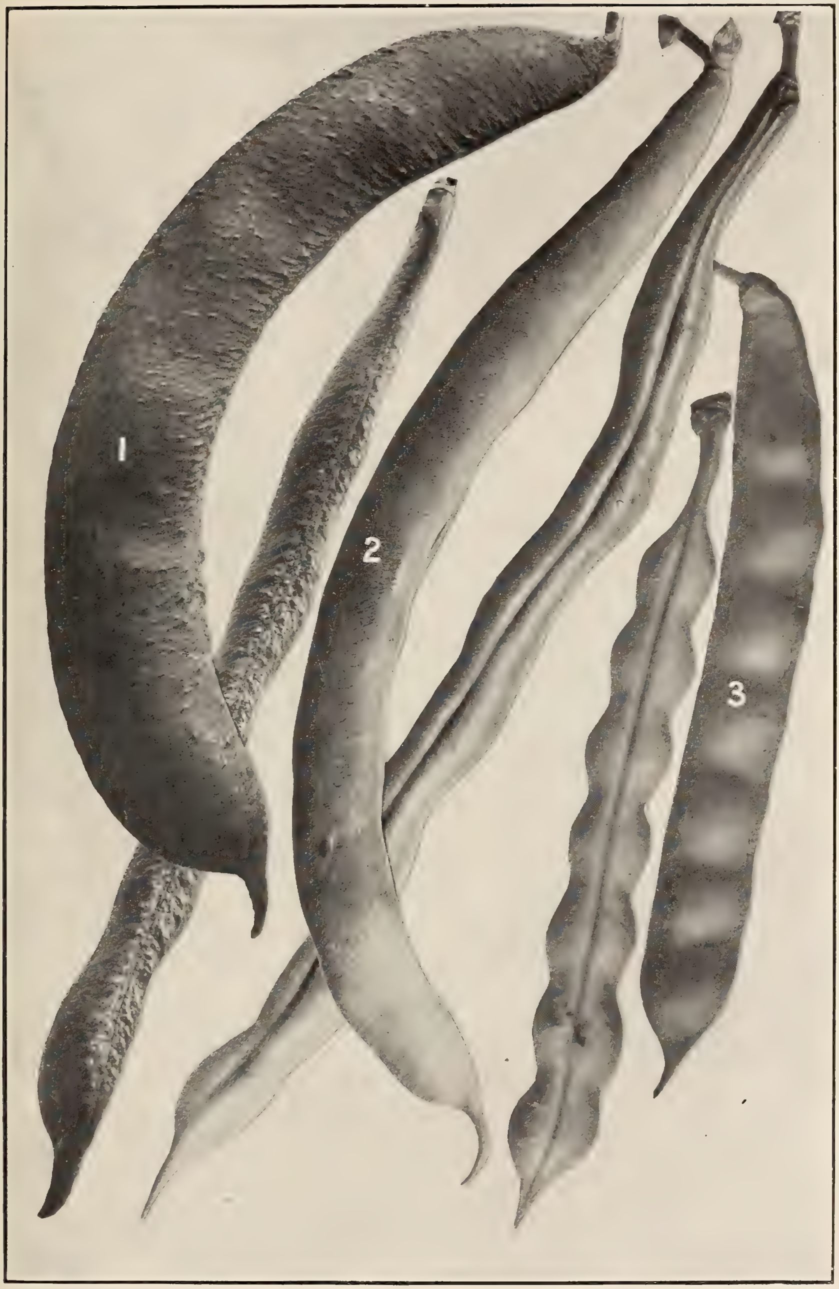
($\frac{7}{8}$ natural size.)



POLE VARIETIES (GREEN SHELL PODS AND SNAP PODS).

1 and 4.—Speckled Cut Short Pole. 2.—Scotia Pole. 3.—Black Kentucky Wonder Pole.

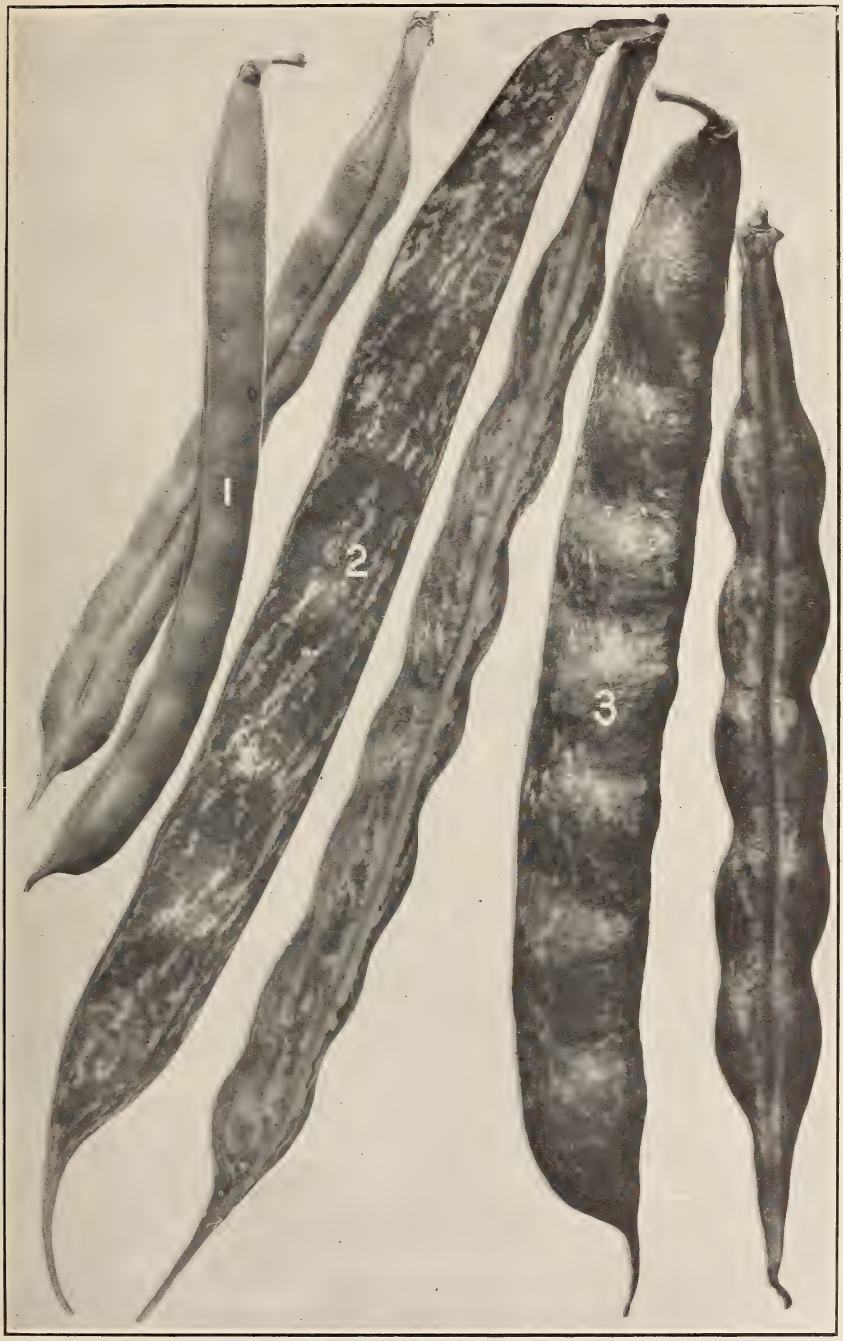
($\frac{7}{8}$ natural size.)



POLE VARIETIES (SNAP PODS AND GREEN SHELL PODS).

1.—White Dutch Runner Pole. 2.—White's Prolific Pole. 3.—Red Cranberry Pole.

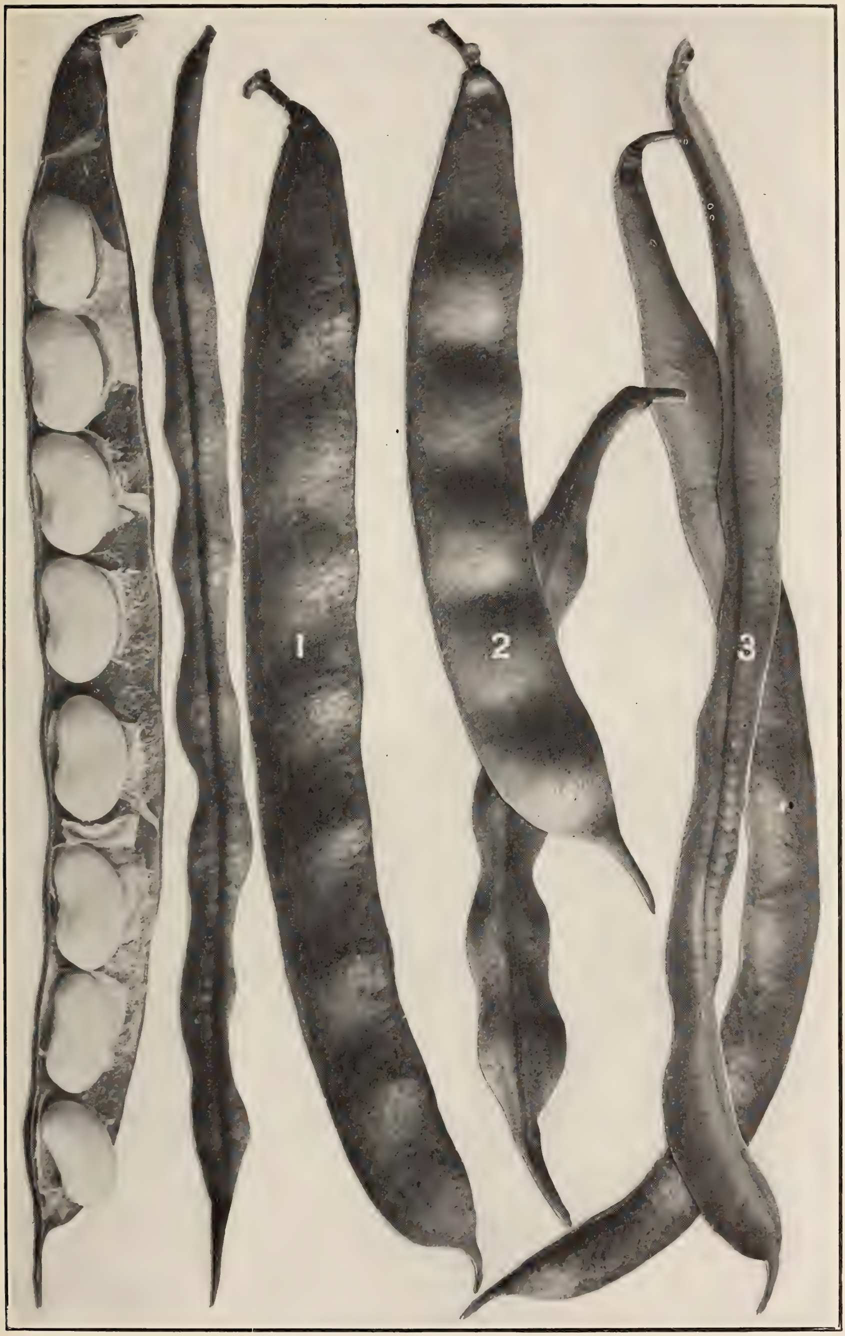
($\frac{7}{8}$ natural size.)



POLE VARIETIES (GREEN SHELL PODS).

1.—White Creaseback Pole. 2.—Brockton Pole. 3.—Worcester Mammoth Pole.

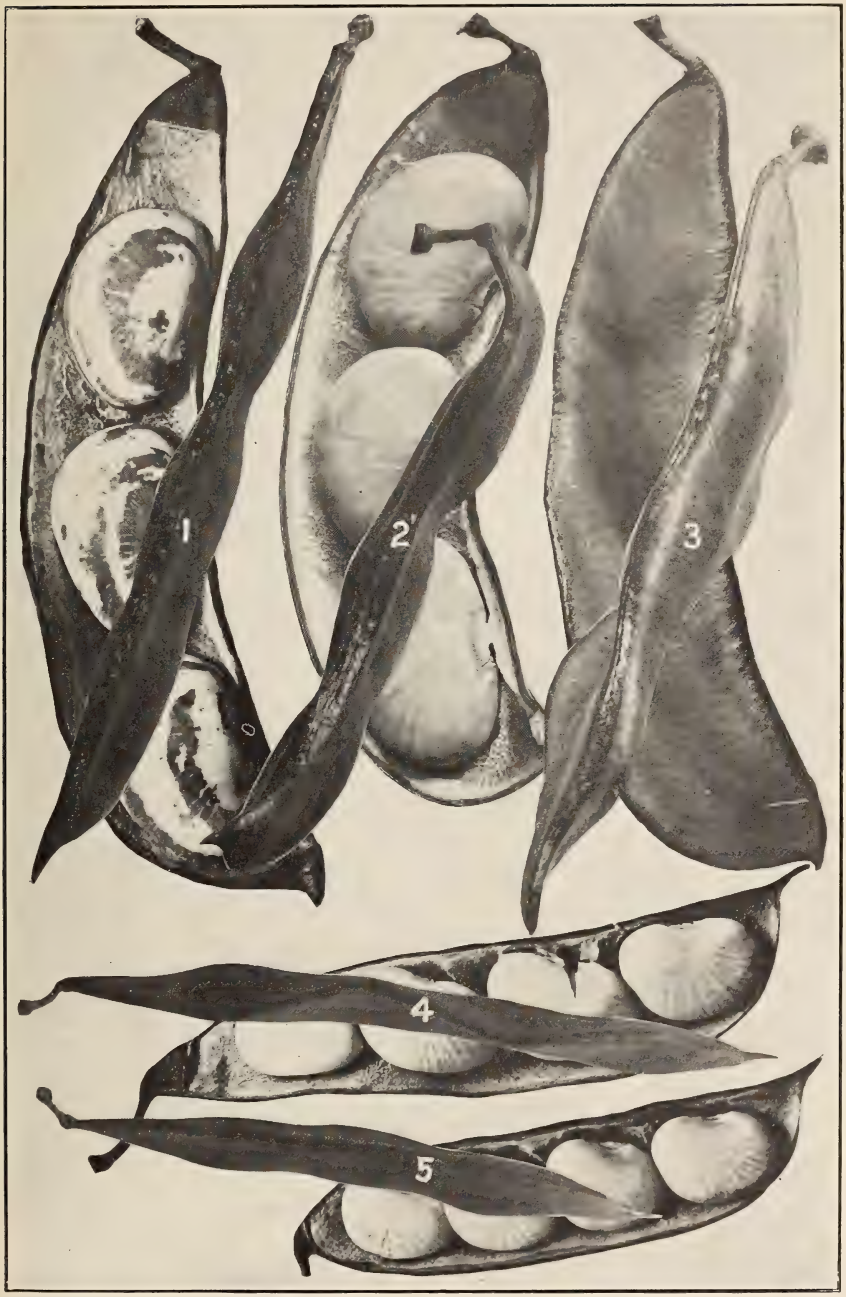
($\frac{7}{8}$ natural size.)



POLE VARIETIES (GREEN SHELL PODS).

1.—Dutch Case Knife Pole. 2.—Concord Pole. 3.—Royal Corn Pole.

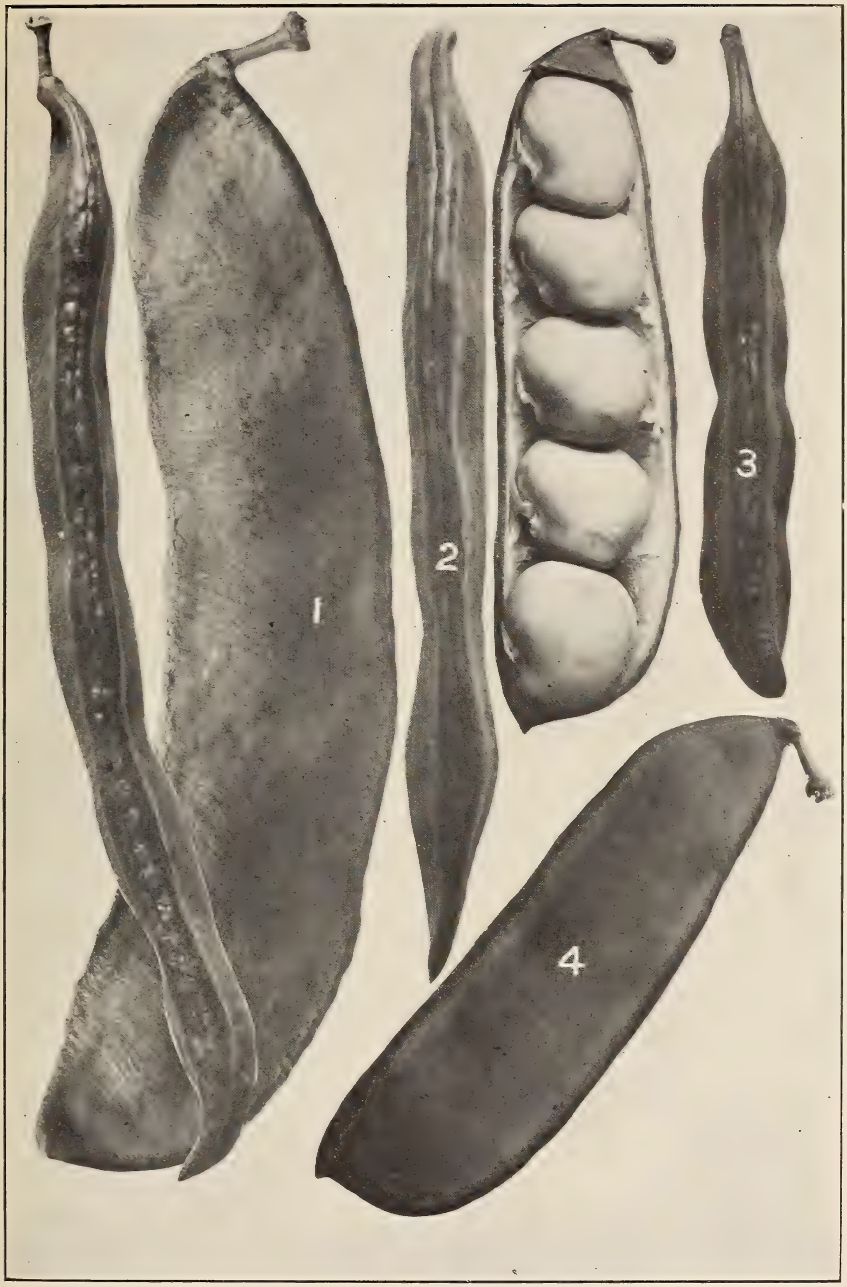
($\frac{7}{8}$ natural size.)



LIMA VARIETIES (GREEN SHELL PODS).

1.—Mottled Pole Lima. 2.—Burpee's Bush Lima. 3.—Seibert's Pole Lima. 4.—Wood's Improved Pole Lima. 5.—Small White Pole Lima.

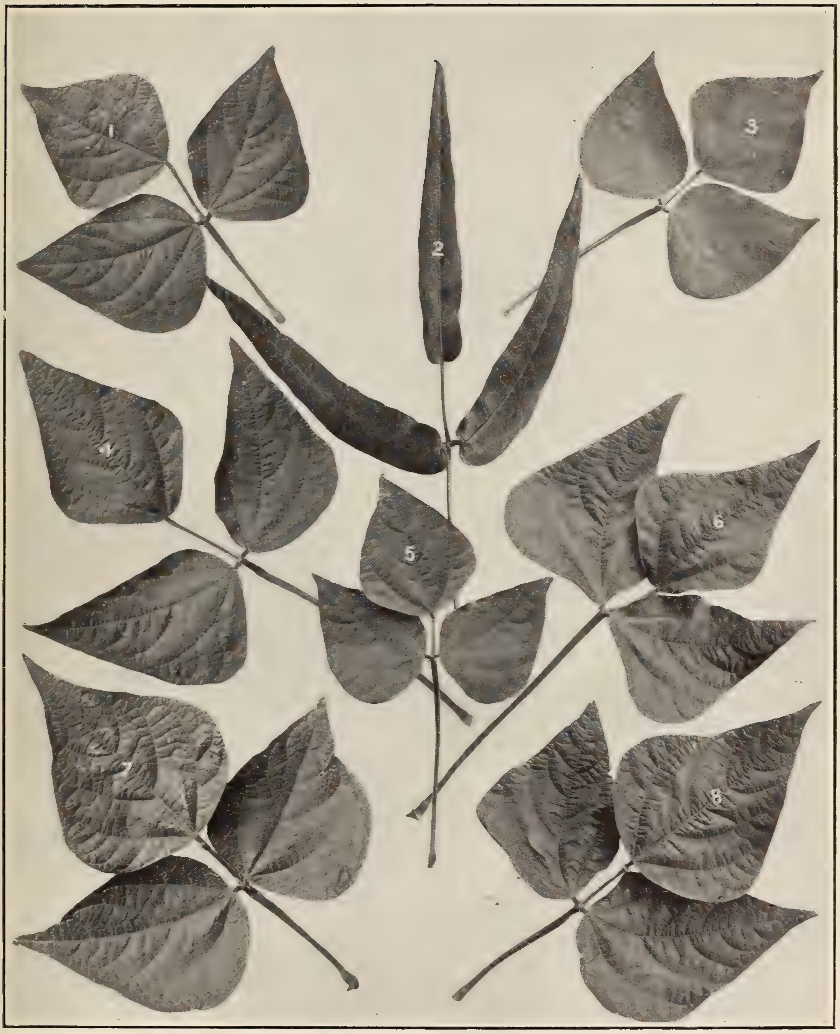
($\frac{7}{8}$ natural size.)



POLE LIMA VARIETIES (GREEN SHELL PODS).

1.—King of Garden Pole Lima. 2.—Leviathan Pole Lima. 3 and 4.—Dreer's Pole Lima.

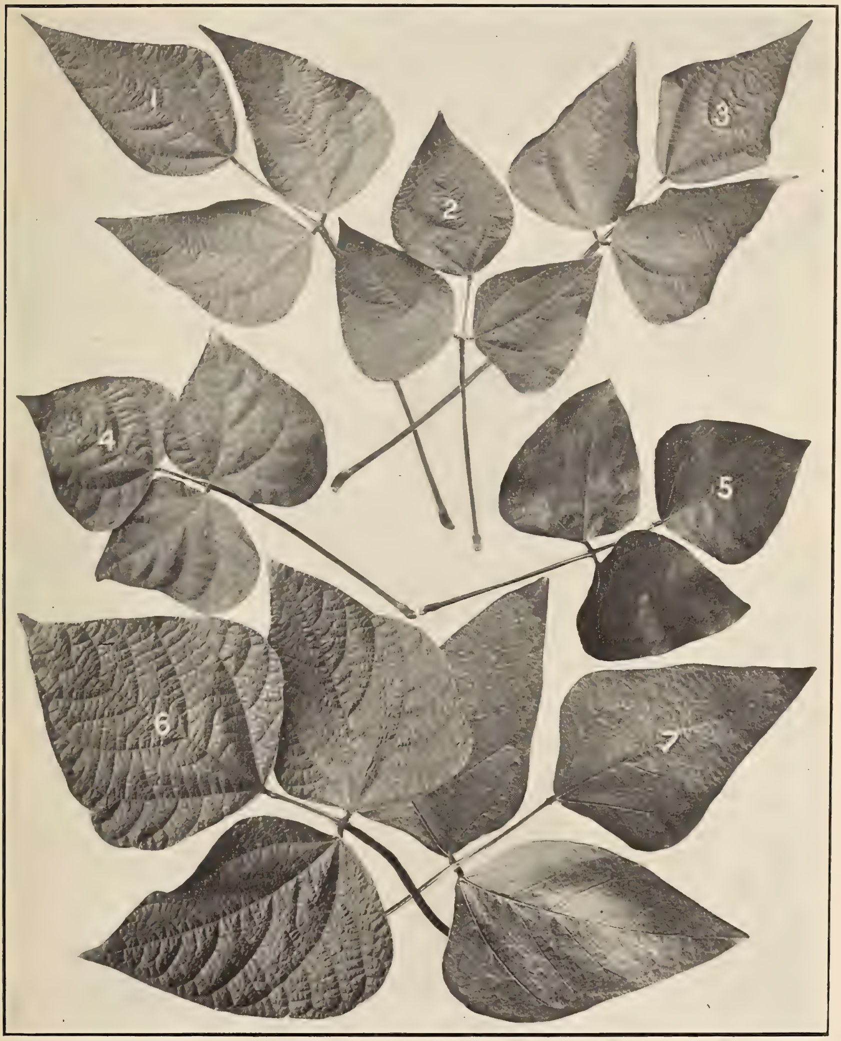
($\frac{7}{8}$ natural size.)



LEAF TYPES.

1.—Keeney's Rustless Golden Wax. 2.—Willow-Leaved Pole Lima. 3.—Rogers's Lima Wax. 4.—Refugee Wax. 5.—Snowflake Field. 6.—Red Valentine. 7.—Ruby Horticultural Bush. 8.—Davis Wax.

($\frac{1}{4}$ natural size.)



LEAF TYPES.

1.—Galega. 2.—Golden Wax. 3.—Golden Refugee. 4.—Blue Pod Butter. 5.—Small White Pole Lima. 6.—Canadian Wonder. 7.—Dreer's Pole Lima.

($\frac{1}{4}$ natural size.)

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